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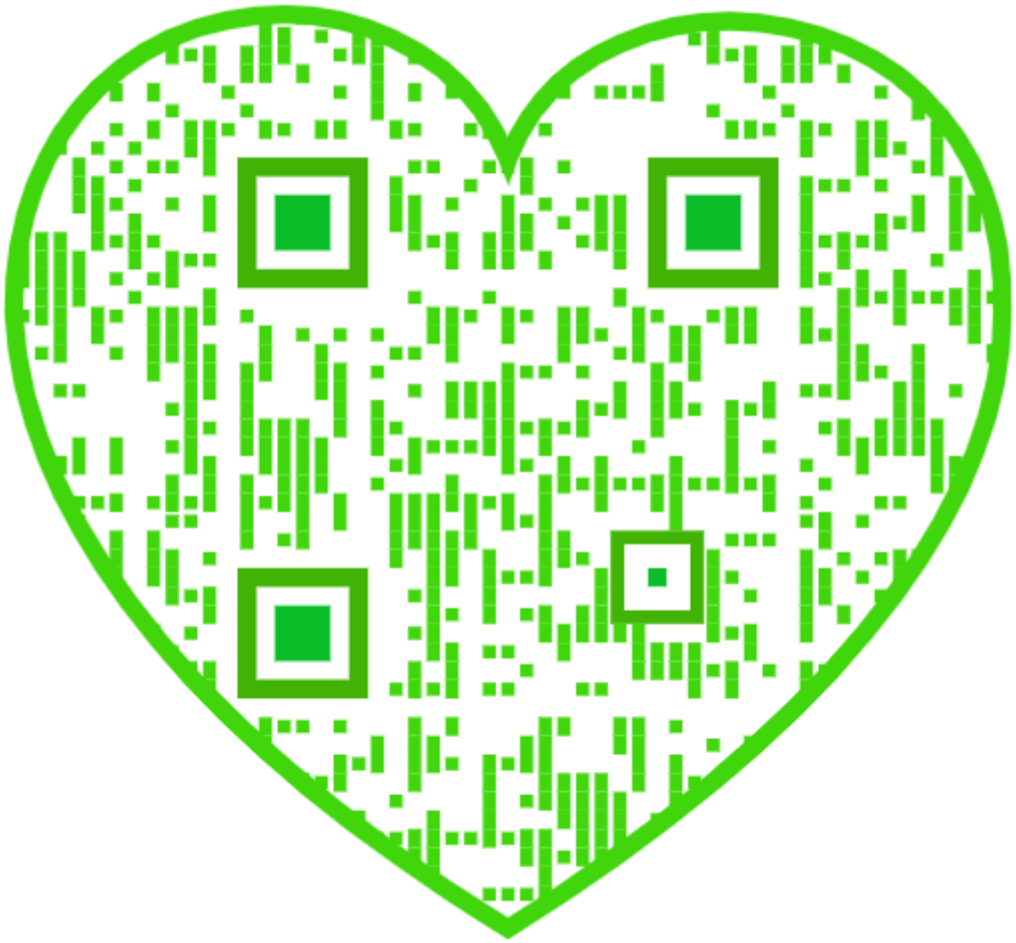
Remedies for Hog Cholera.

1914



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63D CONGRESS
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REMEDIES FOR HOG CHOLERA

SPEECH

DELIVERED IN THE SENATE OF THE UNITED STATES
RELATIVE TO CERTAIN REMEDIES AND PREVENTIVES FOR HOG CHOLERA
ON JANUARY 26, 1914

By

HON. WILLIAM S. KENYON
SENATOR FROM IOWA

PRESENTED BY MR. NORRIS
JUNE 4, 1914.—Ordered to be printed

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1914

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REMEDIES FOR HOG CHOLERA.

SPEECH OF HON. WILLIAM S. KENYON, OF IOWA, IN THE SENATE OF THE UNITED STATES, MONDAY, JANUARY 26, 1914.

The Senate had under consideration the bill (S. 3439) appropriating funds for the purpose of providing and administering remedies for hog cholera.

Mr. KENYON. Mr. President, I do not want to take very much time, and what I say is somewhat supplemental to what the Senator from Ohio [Mr. Pomerene] has said. But at the same time, I do not want to offer any apology for taking a little of the time of the Senate in presenting the case of the American farmer on this subject.

I read an article in an Ohio paper a few days ago stating that Senators Pomerene and Kenyon would introduce their bill "to abolish hog cholera in the United States Senate on next Thursday." I never knew just what was the matter with the Senate; the paper, I judge, is wrong.

The Washington Times had an editorial on this subject that is very good. I wish to make it a part of my remarks, and am going to ask to have it read by the Secretary at the desk. It states the whole thing, I think, in a nutshell, although the figures as to the appropriation are wrong.

The PRESIDING OFFICER (Mr. Vardaman in the chair). Without objection, the Secretary will read as requested.

(The Secretary read as follows:)

[Washington Times, January 17, 1914.]

JUST PLAIN COMMON SENSE.

Out in Ohio they are starting a sort of national campaign for the extinction of hog cholera, and they want the cooperation of Congress and the State legislatures. Of course, there will never be so much appeal to the imagination in such a commonplace proceeding as there would in something less specific or practical; but it would be a fine thing if some such simple, common-sense things could be taken up and put into execution.

We are worrying about the increasing cost and decreasing supplies of meat. No wonder. Hog cholera alone takes enough meat every year to account for the whole annual discrepancy. But that is not all it does. It is not even the worst it does.

The farmer who raised a drove of hogs right up close to the finishing and marketing point, putting his year's corn crop into them, and who then, late in the fall, when he has plans matured for spending the money they are going to bring in, sees them die on his hands, is losing something more than that drove of hogs.

He loses confidence in the hog-raising industry.

It takes more persistence and pertinacity than most men possess to turn right around after a calamity like that and raise another drove of hogs. The man who suffers from the visitation of cholera is very likely not to have left even the basis on which to begin producing a new herd; he is pretty certain, in any case, not to retain much enthusiasm about doing it.

Therefore it is common experience that the farmer who this year loses 50 hogs will probably in the next two or three years produce 200 fewer hogs than he would but for this present loss. That is to say, if hog cholera takes $100,000,000 worth of hogs a year, as some of the statisticians say, it prevents the raising of two or three times that much more. And that means the difference between adequate and inadequate meat supplies for the country.

The fact is that if hog cholera could be abolished by an executive decree, the United States would in two years be restored to its old place as the greatest meat-exporting country in the world. To-day our exports are practically wiped out.

Senator Kenyon some time ago introduced a bill to appropriate $5,000,000 for the conduct of the Agricultural Department's campaign to eradicate hog cholera. It should be understood that eradication is no chimera. Remedies have been developed, methods devised, that in time, backed by enough money and authority, would well-nigh exterminate the germs of the disease. But there can be no general results without those two things—money and rigorous authority.

Probably the world has got wise and liberal enough by this time to assure that such a measure as this would not be defeated with the sneering suggestion that it was "giving the farmer a few more millions." It is not more than nominally a service to the farmer. The farmer can do a lot of other things aside from raising hogs. Just at present, with corn worth around 70 cents, it is hard enough to keep the farmer convinced that it is worth while to turn the corn into meat. It takes a good deal less work and risk to haul the corn to town and sell it. What the country needs is means to keep the farmer in the mind of raising hogs, and the thing that would encourage him more than anything else would be the assurance that his chance of loss by cholera was going to be reduced year by year.

An appropriation for the stamping out of cholera would be an appropriation to do the most practical work possible in the direction of increasing the national meat supply.

Mr. KENYON. I think possibly that that editorial states the situation better than I can, but I am so intensely interested in this question and it so affects my State that I wish to present a few facts in relation to it.

The question of the high cost of living is one that is interesting everybody and to which the people are giving a very deep study. While it may not seem to comport with the dignity of this body to discuss hog cholera, yet the losses from hog cholera have been so appalling in this country that it has become a subject which must attract the attention of the National Congress. It has gone beyond all State lines and becomes a national problem, and it is an important problem to the great industry of agriculture, which produced last year farm products exceeding $6,000,000,000 in value.

This proposition also is a great economic proposition. It goes to the question of the cost of living. It goes to the question of something to eat for the people, and that is just as important as any Alaskan railway or any Mexican question or any tariff or currency question.

As suggested by the Senator from Ohio [Mr. Pomerene], I do not believe that Members of Congress appreciate what a tremendous loss there has been in this country due to hog cholera. We have a great interest in the farmers of this country, especially at election times, but if we have that devoted interest to the farmer we have a chance in helping him now to show what that interest really is.

Prof. Kennedy, of the agricultural college at Ames, in my State, made a statement relating to the loss of hogs from cholera during the year 1912 which is rather astounding. He said:

The national hog-cholera loss last year was 900,000,000 or 1,000,000,000 pounds of meat. This was 10 pounds per capita. Iowa's loss was 150,000,000 pounds, or 62 pounds per person, and was more this year.

He further stated that—

Iowa's loss this year would be $20,000,000. * * * It is a great feature in the high cost of living, and I am for liberal Federal aid in the elimination of hog cholera.

On yesterday I received a letter from Prof. Kennedy in which he placed the loss for the year 1913 as rather high. He says he sent out letters to every bank cashier in towns of 10,000, and in relation to it he received 1,120 replies.

By actual count—

He says—

Dallas County—

One of the counties in our State—

this year lost about 20,000 head, or about 16⅔ per cent. The data which we gathered would indicate about 17 per cent loss, so you can see that our reports are fairly accurate. I think it is putting it very low to say that the farmers of Iowa, during 1913, lost at least $30,000,000 through hog cholera.

I think that is too high, but he estimates three sources of loss.

One is the direct loss from the hogs which die—

Which in this country would amount to 10 pounds of meat for every man, woman, and child—

Second, the direct loss from the marketing of pigs in a half-fat condition, thus sold at a sacrifice; third, the indirect loss to the cattle feeder, who loses a considerable amount of his feed by not having the hogs to follow his cattle.

I am going to discuss that in a moment as one of the matters entering vitally into the cause of the high cost of living. I shall ask permission to make this letter a part of my remarks.

The Presiding Officer. Without objection, it is so ordered.

(The letter referred to is as follows:)

Ames, Iowa, *January 19, 1914.*

Senator W. S. Kenyon, *Washington, D. C.*

Dear Senator Kenyon: Under separate cover I am sending you a hog-cholera report for the year 1913. This data was collected by the agricultural extension department in order that we might ascertain so far as possible the loss from hog cholera during the year 1913, also to have a comparison of 1913 with 1912. In order to get this data I sent out letters to every bank cashier in towns of 10,000 and under, asking them three questions: First, what was the percentage of hogs which died from hog cholera in their vicinity during the year 1913; second, what percentage of the hogs were marketed early—say, weighing between 50 and 150 pounds—due to the hog-cholera scare; third, how the loss compared with that of 1912.

We have received 1,120 replies, representing every county in Iowa. I have the data tabulated in the report which I am sending you. I believe that the number of hogs stated in the different counties is too low. For instance, in Dallas County the report shows 93,852 head. A farm-to-farm canvass made by our department for the United States Department of Agriculture, in connection with this hog-cholera work there this year, showed that there were 120,000 head of hogs in Dallas County. By actual count Dallas County this year lost about 20,000 head, or about 16⅔ per cent. The data which we gathered would indicate about 17 per cent loss; so you can see that our reports are fairly accurate. I think it is putting it very low to say that the farmers of Iowa during 1913 lost at least $30,000,000 through hog cholera.

There are three sources of loss: One is the direct loss from the hogs which die; second, the direct loss from the marketing of pigs in a half-fat condition, thus sold at a sacrifice; third, the indirect loss to the cattle feeder, who loses a considerable amount of his feed by not having the hogs to follow his cattle.

I assure you that this is an important subject in Iowa. In my judgment, you can do our people a great deal of good by having a law passed demanding Federal testing of every drop of serum made in the commercial plants. This, in my judgment, is the first step in the hog-cholera work. Every man with whom I have talked feels that this is the case. I assure you that we will be glad to help you in any way possible. I am,

Very truly, yours, W. J. KENNEDY.

Mr. KENYON. In going over the records of hog losses in this country, and after consultation with the Bureau of Animal Industry on the subject, I learn that practically 90 per cent of all losses of swine that occur each year are due to a disease known as hog cholera, and if this be the case, as it undoubtedly is, the loss is appalling, and it is certainly time for us to provide some means for the eradication of the disease, if such a thing is possible. I do not know just what is best. We can only judge of that by the experts of the Agricultural Department and the farmers, but I am in favor of a large appropriation being placed at the disposal of the Department of Agriculture for them to use in such way as they deem fit.

We have placed $40,000,000 practically in the hands of the President of the United States to build railroads in Alaska. This proposition is far more important than any railroad in Alaska, and the losses of one year, if saved, would build three times the amount of railroad we are going to construct in Alaska.

So we can likewise have confidence in the Secretary of Agriculture to use this money wisely and to accomplish the purposes intended.

Hog cholera made its first appearance in this country in the State of Ohio, brought in by the importation from some foreign countries of blooded stock, and as Ohio has that unpleasant distinction, it now has the better distinction of being the State that has appropriated more to help solve this problem than any other State in the Union, having appropriated $100,000 for a serum plant—more money than the Government has appropriated in the last 10 years on this question.

This disease has gradually extended throughout the country until now there is scarcely a State in the Union free from its ravages. Transportation lines have unwittingly and unknowingly helped to carry this disease by the fact that cars were not properly cleaned and fumigated. If no method is found to check this disease the farmers will cease to raise hogs, as a farmer will not run the risk of having the herd which represents his time and represents his crop absolutely wiped away in a week or ten days by this scourge. If the farmer does that, the cost of living is going up to a point where even our Democratic friends can not explain it.

I have prepared a map showing the losses in the various States from hog cholera in the year 1912. It shows the money expended by the various States in fighting the disease, the number of swine raised in those various States, and the recommendation of those various States as to the governmental appropriation. I want to call the attention of the Senate to just a few of the statements. This is not a northern matter entirely.

I have had letters from experts from the State of Georgia stating that the question is becoming a live one in the State of Georgia. During the year 1913 the State of Georgia lost 165 out of every thousand hogs. In the year previous the loss was 90 out of every thousand. So the loss in Georgia in one year's time increased nearly 100 per cent.

In the State of Florida in 1913 the loss was 170 out of every thousand. The previous year the loss was 100 out of every thousand, an increase of 70 per cent in the State of Florida.

In the State of Alabama in 1913 the loss was 110 out of every thousand. In the previous year the loss was 65 out of every thousand, showing an increase of nearly 100 per cent in the State of Alabama.

In the State of Louisiana in 1913 the loss was 110 out of every thousand. In the previous year it was 100.

In the State of Arkansas in 1913 the loss was 160 out of every thousand. In the previous year 140.

Mississippi lost 154 out of every thousand in 1913. In the previous year in Mississippi the loss was 75 to a thousand, an increase in loss of over 100 per cent.

Taking the States of the far West as indicated on the map——

Mr. OVERMAN. Has the Senator the statistics for North Carolina?

Mr. KENYON. I have the statistics here for North Carolina. For the year ending January 1, 1913, North Carolina lost 69,687 hogs to the value of $536,589. Colorado in 1913 lost 100 out of each thousand. The loss of the previous year in Colorado was 20 out of each thousand, being an increase of 500 per cent in the State of Colorado.

Mr. BRADY. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Idaho?

Mr. KENYON. I do.

Mr. BRADY. Has the Senator any information as to the loss in 1913?

Mr. KENYON. I have it for my own State, and I have statistics as to the year ending March 31, 1913. I have no figures later than that.

Mr. BRADY. I notice that the loss to Idaho in 1912, according to the figures on the map, was something over 7,000. The loss probably was several times as great the past year.

Mr. KENYON. I am satisfied that is true.

Mr. BRADY. I wondered whether the Senator has the exact figures.

Mr. KENYON. I have not, but judging from the increase in our own State the loss in Idaho must have increased that much.

The State of Indiana in 1912 lost 150 out of each thousand; Illinois, 140 out of each thousand; Nebraska, 110; Kansas, 120; Missouri, 175 out of each thousand, nearly one-fifth of all the swine within the borders of that State. The loss in Missouri has been more in proportion, slightly so, to the number of swine than in any other State for the year 1912, but the Government is making experiments now in Missouri, Indiana, and Iowa. Iowa lost 160 out of each thousand. The previous year the loss was 80, which showed an increase of 100 per cent.

I desire to have inserted in the Record this statement of the condition of hogs April 1, and the estimated loss during the year ending March 31, 1913, from which I have just read. It is the latest, I will say to the Senator from Idaho, I have. These figures were obtained from the crop reports for 1913, and I wish to make them a part of my remarks.

The PRESIDING OFFICER. If there is no objection, it will be so ordered.

(The matter referred to is as follows:)

Condition of hogs Apr. 1 and estimated losses during the year ending Mar. 31, 1913, with comparisons.

State and division.	Losses from disease.				Condition Apr. 1.			Breeding sows.
	1913 [1]	1912 [1]	10-year average.[1]	Number.	1913	1912	10-year average.	
	Pr. ct.	*Pr. ct.*	*Pr. ct.*		*Pr. ct.*	*Pr. ct.*	*Pr. ct.*	*Pr. ct.*
Maine	28	15	14	2,828	97	98	98	95
New Hampshire	25	20	17	1,300	95	98	98	93
Vermont	19	39	20	2,033	99	99	99	98
Massachusetts	40	35	22	4,600	95	96	98	94
Rhode Island	25	18	21	350	97	97	98	93
Connecticut	30	48	26	1,740	97	98	99	97
New York	30	29	22	22,830	98	96	98	95
New Jersey	40	40	28	6,400	97	95	97	96
Pennsylvania	43	37	29	48,590	96	93	96	95
North Atlantic	36.3	33.7	25.0	90,671	96.8	94.9	97.2	95.1
Delaware	50	80	47	2,900	92	92	94	97
Maryland	90	75	37	30,150	94	91	95	94
Virginia	48	40	45	40,128	95	92	95	98
West Virginia	73	41	32	25,988	94	94	95	100
North Carolina	58	44	60	77,430	94	94	94	98
South Carolina	75	60	60	57,375	90	90	94	97
Georgia	165	90	66	311,520	92	90	94	91
Florida	170	100	79	149,260	92	92	93	91
South Atlantic	107.7	68.8	57.5	694,751	92.8	91.6	94.2	94.7
Ohio	86	70	46	292,314	94	90	95	100
Indiana	150	125	68	556,350	89	88	94	95
Illinois	140	215	71	604,100	91	85	95	108
Michigan	40	40	31	52,520	94	95	96	96
Wisconsin	28	28	24	56,840	96	97	96	99
North Central east Mississippi River	105.8	118.9	55.6	1,562,124	92.1	89.4	95.0	100.2
Minnesota	55	30	30	93,610	96	97	97	105
Iowa	160	80	54	1,395,200	89	91	96	95
Missouri	175	160	74	715,225	84	82	93	101
North Dakota	20	15	17	7,320	98	98	98	105
South Dakota	38	38	54	44,878	95	96	96	107
Nebraska	110	60	63	417,780	93	94	96	101
Kansas	120	132	50	313,320	91	84	94	119
North Central west Mississippi River	133.0	90.9	56.5	2,987,333	90.0	89.8	95.3	101.2
Kentucky	95	70	60	155,610	90	89	93	94
Tennessee	99	70	59	148,005	89	90	94	90
Alabama	110	65	60	160,160	92	92	94	93
Louisiana	110	100	91	155,320	88	84	91	95
Texas	45	34	37	112,185	94	90	95	105
Oklahoma	81	145	64	107,325	88	79	92	120
Arkansas	160	140	92	244,640	87	84	90	95
Mississippi	154	75	62	228,228	91	90	94	90
South Central	102.2	83.5	60.4	1,311,473	90.2	87.5	93.2	97.3
Montana	20	19	20	3,060	97	98	98	110
Wyoming	15	12	18	615	100	99	99	107
Colorado	100	20	21	20,500	94	98	98	100
New Mexico	27	16	19	1,404	97	95	95	104
Arizona	13	12	28	299	98	99	95	105
Utah	24	16	20	1,944	99	98	98	100
Nevada	21	24	22	672	98	97	98	101
Idaho	37	14	17	8,621	96	99	98	113
Washington	22	22	18	5,676	98	98	98	106
Oregon	30	16	17	8,040	98	99	98	107
California	50	25	37	41,100	97	97	97	97
Far Western	42.4	20.6	25.8	91,931	97.0	97.8	97.6	102.4
United States	110.1	89.2	54.9	6,738,283	91.4	89.9	94.8	99.1

Loss by cholera in 1912, $60,000,000.

[1] Losses per 1,000 head.

Mr. KENYON. I want also to place in the Record a table showing the estimated number, the average price, and the total value of swine in the United States January 1, 1913, with comparisons; also a table showing the estimated loss there given for the same year. I will not take the time to read these figures, but I should like to have the table printed.

The PRESIDING OFFICER. Without objection, the request will be granted.

The tables referred to are as follows:

Estimated number, average price, and total value of swine in the United States Jan. 1, 1913, with comparisons.

State and division.	Number Jan. 1, 1913.		Average price per head Jan. 1.			Total value Jan. 1, 1913.	Average age when marketed.[2]
	Per cent.[1]	Total.	1913	1912	10-year average.		
Maine	100	101,000	$12.90	$11.50	$10.10	$1,303,000	9.0
New Hampshire	98	52,000	12.70	10.50	10.40	660,000	9.0
Vermont	96	107,000	12.20	10.00	9.10	1,305,000	9.0
Massachusetts	98	115,000	13.00	11.30	10.80	1,495,000	9.8
Rhode Island	90	14,000	14.50	12.00	11.40	203,000	9.8
Connecticut	97	58,000	14.00	11.60	11.70	812,000	9.5
New York	98	761,000	12.60	10.20	9.70	9,589,000	9.0
New Jersey	97	160,000	13.00	11.30	11.10	2,080,000	10.0
Pennsylvania	99	1,130,000	12.50	10.00	9.30	14,125,000	10.0
North Atlantic	98.3	2,498,000	12.64	10.32	9.69	31,572,000	9.6
Delaware	98	58,000	11.20	7.20	8.30	650,000	10.0
Maryland	97	335,000	9.80	8.00	7.70	3,283,000	10.0
Virginia	95	836,000	7.00	6.30	5.70	5,852,000	11.0
West Virginia	98	356,000	9.00	6.70	6.50	3,204,000	11.6
North Carolina	95	1,335,000	7.70	7.40	5.90	10,280,000	11.6
South Carolina	96	765,000	8.50	8.00	6.40	6,502,000	12.5
Georgia	90	1,888,000	7.10	6.70	5.90	13,405,000	12.0
Florida	92	878,000	5.90	5.20	3.90	5,180,000	13.0
South Atlantic	93.5	6,451,000	7.50	6.80	5.95	48,356,000	11.8
Ohio	95	3,399,000	10.80	8.20	7.80	36,709,000	9.5
Indiana	92	3,709,000	9.80	7.70	7.40	36,348,000	9.6
Illinois	93	4,315,000	10.50	8.80	8.20	45,308,000	10.0
Michigan	95	1,313,000	10.80	8.50	8.20	14,180,000	9.0
Wisconsin	99	2,030,000	11.60	9.00	8.80	23,548,000	9.1
North Central east of Mississippi River	94.2	14,766,000	10.57	8.52	8.00	156,093,000	9.6
Minnesota	100	1,702,000	12.70	10.40	8.80	21,615,000	10.0
Iowa	90	8,720,000	12.00	9.80	8.60	104,640,000	10.7
Missouri	91	4,087,000	8.50	7.00	6.30	34,740,000	10.7
North Dakota	102	366,000	13.70	10.50	8.90	5,014,000	10.7
South Dakota	107	1,181,000	11.00	8.90	8.50	12,991,000	10.5
Nebraska	89	3,798,000	11.40	8.80	8.10	43,297,000	11.0
Kansas	93	2,611,000	10.40	7.90	7.60	27,154,000	10.5
North Central west of Mississippi River	92	22,465,000	11.10	8.90	7.99	249,451,000	10.7
Kentucky	95	1,638,000	7.10	5.40	5.40	11,630,000	10.5
Tennessee	95	1,495,000	7.40	6.10	5.50	11,063,000	12.0
Alabama	95	1,456,000	6.80	6.50	5.20	9,901,000	13.0
Mississippi	94	1,482,000	6.90	6.50	5.10	10,226,000	13.0
Louisiana	86	1,412,000	7.00	5.80	5.10	9,884,000	15.0
Texas	98	2,493,000	8.40	6.30	5.60	20,941,000	12.6
Oklahoma	94	1,325,000	8.90	5.50	6.10	11,792,000	12.0
Arkansas	88	1,529,000	6.70	5.40	4.30	10,244,000	14.0
South Central	93.4	12,830,000	7.46	5.95	5.35	95,681,000	12.7
Montana	107	153,000	11.90	9.90	9.60	1,821,000	11.0
Wyoming	95	41,000	11.00	8.60	8.80	451,000	12.0
Colorado	97	205,000	11.00	8.00	8.10	2,255,000	11.5
New Mexico	103	52,000	9.60	8.20	7.30	499,000	11.4
Arizona	103	23,000	11.50	10.50	8.10	264,000	11.5

[1] Compared with Jan. 1, 1912.

[2] Months.

Estimated number, average price, and total value of swine in the United States Jan. 1, 1913, with comparisons—Continued.

State and division.	Number Jan. 1, 1913.		Average price per head Jan. 1.			Total value Jan. 1, 1913.	Average age when marketed.
	Per cent.	Total.	1913	1912	10-year average.		
Utah	102	81,000	$11.00	$9.00	$8.20	$891,000	10.5
Nevada	105	32,000	11.00	10.50	8.70	352,000	10.5
Idaho	110	233,000	10.30	8.00	7.60	2,400,000	11.7
Washington	105	258,000	11.30	9.50	8.50	2,915,000	10.0
Oregon	104	268,000	9.50	8.50	7.00	2,546,000	11.1
California	99	822,000	9.20	8.30	7.20	7,562,000	13.6
Far Western	102.1	2,168,000	10.13	8.60	7.64	21,956,000	12.0
United States	93.5	61,178,000	9.86	8.00	7.28	603,109,000	11.0

Estimated number of hogs lost from cholera—Average price per head Jan. 1, 1913—Total monetary loss to each State.

State and division.	Estimated loss of hogs from cholera for year ending Jan. 1, 1913.	Average prices per head Jan. 1, 1913.	Monetary loss to each State.
Maine	2,545	$12.90	$32,880
New Hampshire	1,170	12.70	14,859
Vermont	1,829	12.20	22,313
Massachusetts	4,140	13.00	53,820
Rhode Island	315	14.50	4,567
Connecticut	1,566	14.00	21,924
New York	20,547	12.60	258,892
New Jersey	5,760	13.00	74,880
Pennsylvania	43,731	12.50	546,637
North Atlantic	81,403	.....	1,030,722
Delaware	2,610	11.20	29,232
Maryland	27,135	9.80	265,923
Virginia	36,115	7.00	252,805
West Virginia	23,389	9.00	210,501
North Carolina	69,687	7.70	536,589
South Carolina	51,637	8.50	438,914
Georgia	280,368	7.10	1,990,612
Florida	134,334	5.90	792,570
South Atlantic	625,275	.....	4,517,146
Ohio	263,082	10.80	2,841,285
Indiana	500,715	9.80	4,907,007
Illinois	543,690	10.50	5,708,745
Michigan	47,268	10.80	510,494
Wisconsin	51,156	11.60	593,409
North Central east of Mississippi River	1,405,911	.....	14,560,940
Minnesota	84,249	12.70	1,069,962
Iowa	1,255,680	12.00	15,068,160
Missouri	643,702	8.50	5,471,467
North Dakota	6,588	13.70	90,255
South Dakota	40,390	11.00	444,290
Nebraska	37,600	11.40	428,640
Kansas	281,988	10.40	2,932,675
North Central west of Mississippi River	2,350,197	.....	25,505,449
Kentucky	140,049	7.10	994,347
Tennessee	133,204	7.40	985,709
Alabama	144,144	6.80	980,179
Mississippi	205,405	6.90	1,417,294
Louisiana	139,788	7.00	678,516
Texas	100,966	8.40	848,114
Oklahoma	96,592	8.90	859,668
Arkansas	220,176	6.70	1,475,179
South Central	1,180,324	.....	8,539,006

Estimated number of hogs lost from cholera, etc.—Continued.

State and division.	Estimated loss of hogs from cholera for year ending Jan. 1, 1913.	Average prices per head Jan. 1, 1913.	Monetary loss to each State.
Montana	2,754	$11.90	$32,772
Wyoming	553	11.00	6,083
Colorado	18,450	11.00	202,950
New Mexico	1,263	9.60	12,124
Arizona	269	11.50	3,093
Utah	1,749	11.00	19,239
Nevada	604	11.00	6,644
Idaho	7,758	10.30	79,907
Washington	5,108	11.30	57,720
Oregon	7,236	9.50	68,742
California	36,990	9.20	340,308
Far Western	82,734	.....	829,582
Total for United States	5,730,844	.....	54,982,825

Mr. KENYON. Those who have examined the map will notice that the great losses have been in what are known as the corn-producing States. Iowa has more hogs than any State in the Union—double the amount. Iowa, Illinois, Missouri, Indiana, and Ohio have been the chief losers, though Kansas has also been a very heavy loser.

I wish to quote from the report of the committee of the United States Live Stock Sanitary Association on hog-cholera legislation. This report was submitted to the association December 2, 1913, and I read as follows:

In studying the conditions that existed in previous decades, and covering a period of about 40 years, the committee finds that the losses from hog cholera have very probably averaged over $50,000,000 annually during these decades.

In 1897 Dr. D. E. Salmon, then Chief of the United States Bureau of Animal Industry, states in the annual report of that bureau: "The losses (from hog cholera) have, however, been tremendous, being placed by some as high as $100,000,000 a year, an estimate which does not appear exaggerated in the light of the careful inquiries in the State of Iowa, from which it was concluded that this one State lost from $12,000,000 to $15,000,000 worth of swine in a single year."

FINANCIAL LOSS TREMENDOUS.

Since this loss is a regular annual occurrence, its meaning can best be brought to us by looking upon it as the lost interest on a permanent investment. It would require an investment of $1,250,000,000, at 4 per cent, to yield $50,000,000, and since this loss has been going on for at least 40 years, the total loss has already exceeded $2,000,000,000, or, with compound interest, to more than twice the hypothetical investment of $1,250,000,000 referred to. Measured in the value of the finished product (pork), these figures would practically be doubled.

The money involved in these losses would build a transcontinental railroad—

This is a report of this committee—

at $10,000 a mile, through the United States every year, or it would support, on a million-dollar-a-year-income basis, a great university and agricultural experiment station for each State in the Union, and half a dozen extra universities for such States as need them.

With these figures before us—

Says this report—

and the problem of the high cost of living staring us constantly in the face, how many questions are of greater economic importance than that of the control of hog cholera for the prevention of these enormous losses?

Now, mind you, the statement of Dr. D. E. Salmon, dates back to the year 1897, and this great loss has been going on ever since that time, and I am credibly informed that the loss in Iowa for the year 1913 will be something like $20,000,000, and that our neighboring State of Missouri will suffer a loss of something like $10,000,000 for the same year.

I have heretofore stated that Prof. Kennedy estimated the loss in our State for 1913 at $30,000,000.

Mr. WARREN. What date was that?

Mr. KENYON. This report is December 2, 1913.

Mr. WARREN. How far back does it go?

Mr. KENYON. It goes back some years.

Indiana, Illinois, Ohio, are also great sufferers, but, as is shown by the map, the balance of the States of the Union have also suffered very materially. It is safe to assume that the losses from hog cholera during the year 1913 have been close to $100,000,000. It would seem where such great economic waste was going on that entered not only into the prosperity of our agricultural classes but into the serious problem of the cost of living that Congress would be willing to do everything in its power to help eradicate this disease. There should be cooperation between the States and the Federal Government. I want to put into the Record the figures showing the amount of money expended by the United States Department of Agriculture in the study of hog-cholera cures and also the amounts that have been expended for the eradication of the boll weevil.

The American hog has not had his day in Congress, but the enemies of boll weevil have had theirs. The prevention of the devastation of the boll weevil has been looked after as best we could. It is now time to pay some attention to the American hog. I desire to insert in the Record a statement of the moneys expended by the United States Department of Agriculture in the study of hog cholera. Prior to 1887 the expenditures were not classified in detail, but I will put them in as best I can. The statement which I desire to be made a part of the Record, without reading, shows that sums amounting to about $229,418.39 have been expended by the bureau from 1899 to 1913, inclusive; $89,564.32 was expended during the 10-year period from 1904 to 1913, indicating an average expenditure on hog cholera for the last 10 years of $8,956.43 per year. I ask that this statement be inserted in the Record without reading.

The PRESIDING OFFICER. If there be no objection, it will be so ordered. The Chair hears none.

(The statement referred to is as follows:)

1887	Not segregated.
1888	Not segregated.
1889	$14,844.71
1890	5,543.68
1891	6,897.20
1892	6,916.38
1893	5,774.13
1894	5,023.05
1895	Not segregated.
1896	Not segregated.
1897	Not segregated.
1898	17,123.54
1899	17,787.29
1900	27,647.91
1901	$14,333.39
1902	9,751.26
1903	8,411.32
1904	8,345.12
1905	5,920.20
1906	4,597.63
1907	7,567.86
1908	10,061.99
1909	5,308.76
1910	10,339.82
1911	12,219.40
1912	12,005.60
1913	13,198.06

Mr. KENYON. That is what the Government has done per year in the last 10 years to assist in blotting out the ravages of hog cholera. That is an insignificant sum. On the other hand, Congress has appropriated year after year hundreds of thousands of dollars to purchase garden seed for free distribution by Members of Congress. The seed purchased for this purpose have cost this Government many more hundreds of thousands of dollars, and if the money that has been spent in garden seed had been spent for the eradication of hog cholera we would not have had the situation which to-day exists. So I am merely pleading for less "pork barrel" and more pork meat.

Mr. JONES. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Washington?

Mr. KENYON. Yes.

Mr. JONES. Can the Senator from Iowa give us any idea as to what has actually been accomplished?

Mr. KENYON. I am going to try to do so.

Mr. JONES. Will the Senator further on state what has been spent by each State?

Mr. KENYON. Yes.

Mr. JONES. Very well.

Mr. KENYON. I will say to the Senator that the map hanging on the wall of the Chamber shows the amount the States have expended at serum plants and for the building of such plants.

Mr. JONES. But it does not show what has been expended on experiments and investigations to determine what ought to be done?

Mr. KENYON. No. The legislatures have appropriated certain sums that have been used for experiments in different States.

Mr. JONES. Has the Senator any information which would enable him to tell us how much the States have actually expended?

Mr. KENYON. Yes. For the eradication of the boll weevil the Government has spent in the last 10 years $2,133,951.80, while it has spent $89,564.32 for the suppression of hog cholera. In addition to that vast amount expended for the eradication of the boll weevil, Congress has made specific appropriations during the years from 1905 to 1908. I am not criticizing those appropriations in any way; they went for a good purpose; I would have voted for them had I been here; but I merely desire to call the attention of the Senate to the small appropriation in comparison which has been made available in the hog-cholera fight.

The Department of Agriculture claims that in the year 1912, I think it was, the boll weevil caused a loss to the cotton crop in this country of about $20,000,000, and a conservative estimate of the loss during the last 10 years would perhaps be $200,000,000.

The purpose which the Senator from Ohio and myself have in mind in presenting these matters to the Senate is because the matter is now being discussed before the Committee on Agriculture, and we thought possibly we might have as large an attendance in the Senate as before the committee, and that, in any event, we would get these matters into the Record for thought. I want to assure the Senate——

Mr. WORKS. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from California?

Mr. KENYON. I do.

Mr. WORKS. So far as I have been able to see, the one important thing which should appeal to the Senate in dealing with this matter has not been touched by either the Senator from Ohio or the Senator from Iowa.

Mr. KENYON. I am not through; just give me an opportunity.

The PRESIDING OFFICER. Does the Senator from Iowa yield further to the Senator from California?

Mr. KENYON. Certainly.

Mr. WORKS. I shall certainly give the Senator all the time he desires, so far as I am individually concerned; but there has been a great deal of money expended by the Government, according to the statement of the Senator from Iowa, and I should like to have the Senator show, if he can, what beneficial results have followed from the use of this serum. According to a statement of the Senator from Ohio [Mr. POMERENE], the loss of hogs has increased immensely during the four years that the serum has been in use. I do not know whether the Senator from Iowa has any figures or data that would cover that phase of the case.

Mr. KENYON. I have exactly; I have a mass of data that I hesitate about using. I was going to put them into my remarks, but I hesitate about taking up the time of the Senate to do so. I wish, however, to say to the Senator that there is not any question of doubt in my mind that there are two sides to the proposition of the serum treatment. In our State we have lost thousands of dollars by bad serum. This serum business, like every other business, offers a fine field for the grafters; they have gone into it, and they have manufactured bad serum. We have had many losses from such serums.

I am not taking the position at all that the serum treatment is absolutely and certainly a remedy, and I am not aligning myself on the side of the serum treatment nor against it. I say there is so much discussion, so much uncertainty, about the serum treatment that that in itself is an argument in favor of a large appropriation which the Secretary of Agriculture may use in further investigating the serum treatment and its results; and I expect to put into the Record some of the figures of Dr. Stange, of my State, who has charge of the plant at Ames, showing the actual result of the use of the serum that is manufactured there as to various herds. I also am going to place in the Record some letters denouncing the serum treatment in unmeasured terms, and contending that if Congress or the Secretary of Agriculture would absolutely stop all shipments of serum it would be better, and that the disease would be sooner eradicated. That is one of the uncertainties of this problem. I am, however, coming to the matters the Senator suggests in a few moments. I am glad if there is any question involved here that excites any interest at all.

The other proposition that I laid down in commencing is the economic one in the movement, that this not only affects the agricultural classes of this country, who are entitled to consideration, but it affects the question of the high cost of living; and it is not only in the actual loss of the meat that the cost of living is affected, but this enters into the question of the production of beef cattle. We often hear the question asked, "Why has the beef production in the agricultural States of the Middle West fallen off so much during recent years?" One of the prime reasons, in my judgment, is this very thing—the ravages of hog cholera.

A man who is a practical farmer, as I am, knows that the cattle industry and the profits therein are dependent to some extent upon the raising of hogs. The hogs follow the cattle; they eat from the cattle; they are practically no expense. The hogs are the profit of the farmer in cattle raising. If the farmer is to have a profit from his cattle, it is absolutely necessary for him to have hogs to follow with the cattle. With the great devastation of the herds by cholera, it would not be profitable for the farmer to engage in the stock-raising business; or, at least, a great many farmers would feel that they could not longer run this risk, as they have been doing, and hence many of them are selling their crops instead of feeding them to cattle.

There have personally come to my attention instances where farmers have lost their entire herds of hogs, amounting in some instances to three or four hundred head. The farmers were feeding those swine along with their cattle, expecting to come out even on the cattle and to make some profit on the hogs; but with those losses going on, the farmer would become a bankrupt if he continued in the cattle-raising business. There would be thousands of farmers who would engage in stock raising if they could be reasonably assured that they would not lose their swine from this plague.

Now, what can Congress do? I realize that that is a very debatable question. It is the theory of those who are proposing liberal appropriations that there must be cooperation between the States and the Federal Government in eradicating the plague. There is another step that must be taken. The complaint has been made of the shipment of quack serums into the various States, which have been used by the farmers to the destruction of their herds, and it is estimated that the farmers in my State have spent hundreds of thousands of dollars within the year for fake serums. That has been the experience of other States. I hold in my hand a little article from Fargo, N. Dak., which is as follows:

STUNG BY FAKE CHOLERA CURE—FARMERS OF NORTH DAKOTA ARE VICTIMS AND LOSE HOGS VALUED AT $500,000.

FARGO, N. DAK., *December 30.*

Farmers of North Dakota have paid more than $20,000 for fake serums advertised as preventives of hog cholera, according to the State food commissioner. Prof. D. F. Ladd, of the State agricultural college. Prof. Ladd estimated the loss to farmers through the death of animals from hog cholera in the last four months at more than $500,000.

The rules of the Department of Agriculture with relation to this matter were not effective until July 1, 1913. I am inclined to think that if the rules of the Department of Agriculture were strictly enforced and they could adopt a rule under the act that has been passed providing for an inspection of every particle of serum before it is shipped in interstate commerce, it would meet the question to some extent; but money is needed for that very inspection. If the rules of the Department of Agriculture will not bring about the desired result with relation to fake serums, then we must have a law to prevent the shipment of these serums in interstate commerce until there has been a governmental inspection or a State inspection. I shall shortly introduce a bill covering this. The serum treatment has been a free field for the grafter, and there is no doubt that the

farmers have been deceived and robbed by fake serums. The serum treatment can not be successful if the serums are bad, and some way must be devised to carry out rigidly the rules of the Agricultural Department with reference to these serums, and the farmer must be protected against the faker and the grafter in the serum business. I do not mean to advocate the serum treatment, but, as suggested before, I do say that the confusion concerning it is an argument in favor of a liberal appropriation, so that the Department of Agriculture may pursue its investigations along this line. I am anxious to get at the facts.

Dr. Dorset, Chief of the Biochemical Division of the Bureau of Animal Industry, is the discoverer or inventor of hog-cholera serum. He has been assisted in this work by Dr. Chas. M. McBryde and W. B. Niles, and others have undoubtedly contributed thereto.

Dr. Dorset defines hog cholera as follows:

> Hog cholera is a very contagious, highly fatal disease peculiar to swine, which causes the death of from forty to sixty millions of dollars worth of hogs annually. Hog cholera has no relation to any other disease of man or animals. It is caused by a minute germ that exists in the blood and body fluids of hogs sick of the disease.

I am not going into the question of germs or other medical terms with relation to hog cholera, further than to say that the germ of hog cholera is classed with the "invisible microorganisms," and in this respect it resembles those which bring about a number of other disease of animals and men, notably yellow fever, contagious pleuro-pneumonia, South African horse sickness, and foot-and-mouth disease. Anything which tends to lower the health of the animal may be regarded as a predisposing cause, such as improper feeding, insanitary condition of hog lots, damp or cold sleeping places, filthy watering and food troughs.

The above conditions can not produce hog cholera, but they can aid to a considerable extent, owing to the unhealthy condition of the hogs. However, it is necessary for a hog to contract one of the germs of cholera before it can be affected. The sick hog is the most dangerous factor in the distribution of this disease. There are many ways in which the disease can be carried to well herds. Dogs frequently carry the germ; in fact, this is a very common way; again, it can be carried by the turkey buzzard; also, by the common crow. I know of several instances where this bird had partaken of a meal from hogs which had died from the cholera, then carried the disease in this way into well herds on some other farm, where they chanced to light. I am also informed by reliable farmers that the disease can be carried downstream from herds which are affected above. I know of one instance where a whole herd was wiped out in this way. The disease can also be brought onto the farm by the purchase of new stock for breeding purposes. I recall such an instance, where practically the entire herd was lost from such exposure.

Of course, Mr. President, there is a great deal in the proposition that must rest with the farmer himself. Sanitary conditions, methods of feeding, and quarantine are matters that he should be instructed in through the agents sent out by the Department of Agriculture in their demonstration work.

After hog cholera has been prevalent on a farm, the premises should be thoroughly fumigated in order to guard against new herds

becoming affected by reason of being placed in such pens and hog houses. A person can not be too careful in cleaning up his premises after the disease has once been stamped out, for, if great care is not exercised, it will again appear. Of course, the germ will die out in time, but it is impossible to give a stated period, as it varies in different sections of the country. I understand that hard, freezing weather will kill the germ, but it is not advisable to place hogs in pens previously occupied by sick hogs until three or four months after the disease has disappeared.

The majority of cases of cholera make their appearance in the early summer and fall. In Iowa it started in very early in the summer last year, and I think this has been true for several years past, so far as Iowa and other Middle Western States are concerned. It has been shown that the loss from hog cholera has been as high as 100 per cent in some herds, while perhaps the average will run from 60 to 80 per cent. In some instances the hog is worthless after having been affected with this disease, for the reason that he has become stunted. It is not best to place hogs recently recovered from hog cholera with a well herd, for in all probability the herd will become affected. Sick hogs should be kept from the well herd for several months, unless the well herd has had the serum treatment, which it is claimed, will prevent the spread of the disease in the herd.

I am indebted for many of the facts with relation to hog cholera to Farmers' Bulletin No. 379, of the Department of Agriculture, which is a valuable bulletin for the farmer.

I ask permission to insert at this point, without reading, a number of extracts from that bulletin which may be of interest to the farmers who may read my remarks.

The PRESIDING OFFICER. If there is no objection, the request will be granted.

(The matter referred to is as follows:)

PREDISPOSING CAUSES.

While the specific cause of hog cholera is the minute microorganism or germ just referred to, there are many factors which may render a herd more susceptible to the disease. In general, anything which tends to lower the health of the animals may be regarded as a predisposing cause. Among such predisposing factors there may be mentioned improper feeding, an insanitary condition of the hog lots, damp or cold sleeping places, and dirty drinking and feeding troughs. Of course, insanitary surroundings and poor feed can not in themselves produce hog cholera, but they lower the vitality of hogs to such an extent that they become comparatively easy victims of any disease-producing germs to which they are exposed.

WAYS IN WHICH THE HOG-CHOLERA GERM REACHES A HERD.

Although the conditions just mentioned undoubtedly exert considerable influence upon the relative resisting powers of hogs to hog cholera, the disease can be started in a herd only by introducing the germ which causes it. This germ is always present in the bodies of sick hogs, and is thrown off from them in large numbers in the feces and urine, thus contaminating the yards or pens in which sick hogs are kept. The most dangerous factor in spreading hog cholera is therefore the sick hog, but any agency which might serve to carry a particle of dirt from infected yards may be the means of starting an outbreak of the disease.

* * * * * * *

Aside from the danger of introducing infection through the hogs themselves it must be remembered that the germ of the disease, which as already stated is

infinitesimally small, may be transported in a minute particle of dirt on the feet of attendants or neighbors who have previously visited farms where hog cholera exists. It may also be carried in this way by dogs and by crows and other birds. It has been claimed, and considerable proof has been brought to show it, that the disease may be carried downstream from herds which are affected above. It is therefore well to avoid placing hogs so that they will have access to streams which pass through other farms. As diseased hogs are frequently transported by rail, it is quite possible for infection to be introduced into a farm by litter dropped from cars in transit, especially if hogs on the farm have access to the tracks.

After hog cholera has visited a farm, the lots, hog houses, feeding troughs, and implements used for cleaning have naturally become contaminated with the germs of the disease, and if new stock is placed in such yards soon after these were occupied by sick hogs the new hogs are very likely to contract the disease, but if such yards are left unoccupied the germs will die out after a while. Unfortunately, it is not possible to tell with certainty just how long a time is required for these germs to die out, this uncertainty being due to the fact that conditions on different farms vary widely, and also because the weather conditions, which have an important influence upon the vitality of the hog-cholera germ, vary from time to time and in different sections of the country. In view of this uncertainty it is safest to wait as long as possible before placing new hogs in lots that have been infected. Such premises should not be restocked sooner than three months after the last hog has been removed. Before restocking, the premises should be cleaned and thoroughly disinfected in the manner described under the heading "General preventive measures."

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APPEARANCE OF A HOG AFTER DEATH FROM HOG CHOLERA.

In regard to the examination of hog carcasses on the farm, it may be well to state that while hog cholera is not communicable to man there is always danger of the hog being infected with other diseases, such as tuberculosis and anthrax, which are highly dangerous to man, and for this reason care should be exercised in examining carcasses of sick hogs, so as to avoid a cut or scratch on the hands, which might serve as a point for the inoculation of disease.

* * * * * * *

SICKNESS CAUSED BY IMPROPER FEEDING.

Although hogs are frequently made sick by improper feeding, there is rarely any cause for mistaking such illness for hog cholera, the only trouble of this character which is likely to give rise to confusion being in the case of swill-fed hogs. Dr. V. A. Moore has reported a disease among swill-fed hogs which closely resembled hog cholera and which was directly traceable to the presence of powdered soaps in the slops. Some of these soaps contain a large amount of alkali, and when mixed with the garbage used for feeding hogs will bring about lesions in the internal organs which are very similar to those seen in hog cholera. In most cases it will probably not be difficult to distinguish such a disease from hog cholera, especially if the mode of feeding be considered. If the illness is due to the presence of alkali in the swill, a change of food should result in a prompt improvement in the condition of the animals. If this does not occur, then, of course, hog cholera or some other germ disease should be at once suspected.

Mr. KENYON. Mr. President, the Department of Agriculture took up the study of hog cholera in 1878 more in an experimental way than anything else, but that information is now obsolete in view of the discoveries of recent years. The department, however, has had a very small amount of money to use. In 1878 there was an appropriation of $10,000 for investigating diseases of swine and also contagious diseases of domestic animals. This appropriation was renewed from year to year, and some scientists investigated the disease, but with little good result. Laboratories during the period from 1878 to 1885 were established in the department and the Bureau of Animal Industry was organized. The early work consisted, for the most

part, in a study of the distribution, classification, and mode of transmission of swine diseases, supplemented by laboratory investigations looking to the cause of the disease. The result of these investigations led to the suggestion of quarantine and disinfection as a preventive. While these examinations and experiments were as to domestic animals in general, in the year 1885, after an exhaustive investigation, announcement was made by the department that one of the great causes of loss among swine was a contagious disease known as hog cholera, caused by a motile bacterium, which was named the hog-cholera bacillus. The Bureau of Animal Industry then commenced a long series of investigations, which had for their object the development of a method of treatment of hog cholera. These investigations were based on the theory that hog-cholera bacillus was the cause of the disease, therefore that microorganism was used for the production of vaccines and serums.

However, after much study it was found that this experiment was a failure, although at different times it was thought that a cure for this disease had been discovered; but after exhaustive experiments where horses and other animals were inoculated with hog-cholera bacillus in order to secure a serum for the treatment of hogs with cholera it was discovered that the serum taken from these animals would not effect a cure, although for a time the department was very much encouraged, but after a field demonstration covering a period of some four years they came to the conclusion that the serum would not answer the purpose for which it was intended.

The failure of these tests to cure hog cholera, and the further fact that hogs recovering from this disease were always immune thereafter, led the bureau to believe that perhaps, after all, they did not fully understand the cause of the disease. At that time they came to the conclusion that in all probability the hog-cholera bacillus was not the only factor which caused this disease, so the department decided to make further experiments. In the year 1903 there was discovered a fatal disease of swine in the State of Iowa which could not apparently be distinguished from hog cholera. This disease was caused by an invisible microorganism, which the experts of the department claimed existed in the blood and fluids of sick hogs. It was further discovered that this germ was so minute that it could not be found by the highest powers of the microscope to be had at that time.

When this disease was first discovered in the State of Iowa, upon careful investigation it was found that this invisible microorganism was identified with all outbreaks of hog cholera, and the department came to the conclusion that the failure of all their earlier attempts to secure an effective serum was due to the fact that they had failed to take this invisible microorganism into account. The department spent considerable time after the discovery of this disease in trying to arrive at the true cause of hog cholera and the relationship of hog-cholera bacillus to hog cholera, as well as to the extent of this new disease found in the State of Iowa and its relation to hog cholera. The bureau carried on exhaustive investigations and considered the disease in all its phases. These experiments were considered of vast importance, and the conclusions, in brief, are as follows:

1. Hog cholera is caused by an invisible microorganism which exists in the blood and other body fluids of sick hogs.

2. The so-called "hog-cholera bacillus" is not the cause of hog cholera, and at the most is merely an accessory factor in the disease.

3. Hogs that recover from hog cholera are thereafter immune. Hogs that recover from artificial infection with the invisible virus are rendered immune against the natural disease, whereas infection with the hog-cholera bacillus does not confer immunity against hog cholera.

The bureau deemed the above investigation of the utmost importance, for it opened the way for the production of efficient methods for the treatment of the disease, and it had also shown where the department had failed in their earlier attempts to control the disease.

The investigations and experiments carried on by the bureau and the conclusions reached relative to the treatment of hog cholera have been confirmed by experts in this disease in foreign countries where hog cholera exists.

During the year 1905 the bureau started experiments with the view of using the hogs themselves as a source of protective serum, and toward the close of the year it was demonstrated to the entire satisfaction of the bureau that hogs could be protected from hog cholera by the following method:

A hog which is immune against hog cholera, either naturally or as a result of an attack of the disease, is injected with large amounts of blood taken from a pig sick of hog cholera. This injection when properly performed does no material harm to the immune. Within a week or 10 days blood is drawn from the immune hog, and this blood after defibrination is used to protect susceptible pigs.

It was not possible to make many tests during the year 1905, but they were carried on during the year 1906 and proved to the entire satisfaction of the department that they had discovered a remedy that would prevent hog cholera. It was deemed important that this discovery should be protected by a United States patent, for the method had been discovered in the Government laboratories, and this would insure its use to all citizens of this country under certain restrictions laid down by the department. Therefore application was made and patent granted by the United States for the manufacture of this serum to the Government or to any of its citizens without the payment of any royalty thereon.

The following facts were brought out by these experiments:

1. When hogs immune against hog cholera are injected with suitable amounts of blood taken from hogs sick of hog cholera the blood serum of the immune acquires the power to protect nonimmune hogs against an otherwise fatal exposure to the disease. This process of producing serum is known as "hyperimmunization."

2. The serum from hyperimmunized hogs may be used to protect susceptible hogs in one of two ways: (a) The serum alone is injected. This confers an immunity lasting for three weeks to two months. (b) The serum is injected simultaneously with a minute amount of blood taken from a hog sick of hog cholera. This is known as the "simultaneous method," and it produces an immunity which lasts for many months, if not for life.

3. The serum is essentially a preventive. It does not cure hogs already visibly sick, but it may be used successfully as a cure if administered in the very early stages of the disease.

The Government confined their experiments to hogs kept at different experimental stations up until the year 1907, at which time they concluded these experiments had reached such a satisfactory stage that it was deemed advisable to try field experiments; so they selected several hundred head of hogs on different farms throughout central

Iowa for this test, and the following method was used in carrying on this work:

Class 1. Healthy herds treated for the purpose of protection against hog cholera which existed on near-by farms. In each herd a certain number of hogs were not treated, but left to serve as controls. In most of the herds in this class the disease did not appear in either the treated hogs or the controls. In a few of these herds, however, hog cholera appeared some weeks after vaccination among the controls, the average loss being 68 per cent of the untreated controls, while of the treated hogs in the same herd associating with the sick control animals none died.

Class 2. Herds which had been exposed to disease through the entrance of a sick hog from a neighboring diseased herd, but at the time of treatment were apparently well. In these exposed herds 4 per cent of the treated hogs died, while more than 89 per cent of the untreated control animals succumbed.

Class 3. Herds in which hog cholera existed at the time of treatment. In these herds the effort was made to treat only those herds where disease had not progressed very far, as past experience had shown that the serum was essentially a protective agent rather than a cure. As a general rule this third class of herds contained comparatively few visibly sick hogs, but yet a sufficient number to show clearly that hog cholera was present, this being confirmed by post-mortem examination in each case. In these sick herds 13 per cent of those that received the serum were lost, whereas of the untreated control animals 75 per cent died. The success of these practical tests, following the uniformly good results obtained in the previous experimental work, was sufficient to show that in this new serum the department possessed a substance which could be utilized to reduce, if not ultimately to entirely eliminate, losses from hog cholera.

After these experiments had been carried on for some time the departu ent sent a notice of the same to the different States and requested that they send a representative to investigate the work being carried on in the State of Iowa, and also that they might become acquainted with the methods used in the manufacture and application of the serum. Some twenty-odd States took advantage of this invitation and sent representatives to investigate the work being carried on. This was during the year 1908. Since then the department has continued its experiments relative to reducing the cost of this serum, and now have succeeded in producing an effective serum that can be had for a cost of from 15 to 40 cents per treatment of each hog.

I desire to insert here, as a part of my remarks, a statement of the Bureau of Animal Industry as to the methods of producing hog-cholera serum.

The Presiding Officer. If there is no objection, it will be so ordered.

(The matter referred to is as follows:)

A vigorous immune hog—that is, one which has recovered from an attack of hog cholera or one which has been exposed to the disease without contracting it—is treated with a large quantity of blood from a hog sick of hog cholera. After a week or two blood is drawn from the immune by cutting off the end of the tail. After standing, the blood clot is removed and the serum or fluid portion of the blood is mixed with a weak solution of carbolic acid and filled into sterilized bottles. We have in this fluid portion of the immune's blood the serum which will protect hogs from hog cholera. This serum is used in either one of two ways, namely, (1) the serum inoculation and (2) the simultaneous inoculation.

These two methods of treatment are carried out as follows:

Serum inoculation.—The hogs which are to be protected are injected on the inside of the hind leg with a suitable dose of the serum alone. This injection will serve to protect hogs from hog cholera for several weeks, and in some cases for a longer time. But if the hog is not exposed to hog cholera within a few

weeks after this treatment, the immunity which is conferred by the serum will gradually lessen in degree and the hog may again become susceptible. If, however, the hog is exposed to hog cholera within a short time after the injection of the serum, the immunity becomes, so far as experiments have shown, of permanent and lifelong duration.

Simultaneous inoculation.—In this form of vaccination the same serum is used as is employed when the serum alone is used, but in addition to the serum there is injected on the opposite side of the body, in the same manner as the serum, a very small amount of blood taken from a hog sick of the cholera. This simultaneous injection of serum and virulent blood confers upon the injected pig a permanent and lasting immunity, and is therefore to be recommended in cases of well herds which may not be exposed for some months after the treatment.

Mr. KENYON. The department has been handicapped in its work in the past years for the want of proper funds to carry on this work. Congress, however, last year made an appropriation of $75,000 for the continuation of this work, but it was not sufficient, and the funds were exhausted early in the fall, so far as Iowa was concerned. I realize the fact that the department was handicapped for the want of sufficient serum to carry on the work, and for the further reason, as has been suggested by the Senator from Ohio, that the appropriation was not available until the 1st day of July, 1913. At this time the bureau is in a position, if it can secure a liberal appropriation, to fight this plague and to successfully combat the disease, but it will be necessary to have a good portion of this money made available for immediate use, in order that the bureau may become properly organized.

I ask permission to insert as a part of my remarks a letter from President Pearson, of our State Agricultural College, emphasizing the fact that a dollar early in the year is better than three or four dollars later in the summer, when the disease of hog cholera is in full force.

The PRESIDING OFFICER. If there is no objection, the letter may be inserted in the Record.

The letter referred to will be found in the appendix to Mr. Kenyon's remarks.

Mr. KENYON. The bureau carried on experiments in the following States during the year 1913 and is continuing the same at this time, namely, in Nebraska, Indiana, Missouri, and Iowa. The department has no full reports available relative to the work carried on in the counties of the States named, such as Dallas County, Iowa; Pettis County, Mo.; and Montgomery County, Ind., and at present is unable to give a very definite statement. The department, however, is able to ascertain at this time that the losses from hog cholera in these counties have been distinctly less than in either of the two years immediately preceding.

That brings up the question which the Senator from California [Mr. Works] suggested, that with this effective serum, as has been termed by him, the losses have continually increased. Even if the serum were perfectly effective, it might not be strange that the losses should have increased, because it has been absolutely impossible in Ohio or in Iowa or in other States to manufacture this serum in sufficient quantities to meet the demand. I was at the Iowa Agricultural College some two months ago, and at that time they told me that they were 13 weeks behind, and I think in the State of Ohio they are about a thousand orders behind all the time; so that they

can only treat certain numbers; and the disease is increasing simply because of the lack of the serum, granting that the serum is the best treatment and that it can do the work.

Mr. JONES. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Washington?

Mr. KENYON. I do.

Mr. JONES. Has the Senator any information as to what it would cost to install a plant by which the United States Government could furnish sufficient serum to take care of the situation throughout the country?

Mr. KENYON. No; I have not. I assume that it would cost a great deal of money. I am not advocating that; but I do feel——

Mr. STERLING. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from South Dakota?

Mr. KENYON. In just a moment. I do feel, however, that those engaged in the commercial business of manufacturing and shipping serum should be under governmental inspection.

Mr. JONES. It seems to me that that is certainly true, or else the Government should produce the serum and itself send it out, or the States.

Mr. KENYON. I think the States can produce serum under cooperation with the Government.

Mr. STERLING. Mr. President, will the Senator allow me to ask him a question?

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from South Dakota?

Mr. KENYON. I do.

Mr. STERLING. The Senator may have already made the statement, but if so, I did not hear it, as to how long this serum treatment has been going on. For what length of time has there been such treatment?

Mr. KENYON. Dr. Dorset's patent was granted, I think, some five or six years ago. I can not be absolutely accurate as to that; but I would give it as my estimate that it has been in use for some five or six years, though not in any wise to the extent that it has been used in the last two or three years. The general use of this serum, I think, has been confined, say, to the last three years.

Mr. STERLING. Ought not this serum treatment for that length of time to have demonstrated whether or not it is a successful method of treatment?

Mr. KENYON. Well, as was suggested by the Senator from Ohio, there are still people who do not believe in vaccination for smallpox. There are those who are not yet satisfied as to its efficacy. The reports I have from the Iowa Agricultural College show that the treatment has been successful; but, on the other hand, the letters which I have from Dr. Lowry, of Ottumwa, Iowa, and others are to the effect that most of the hog-cholera cases are due to the serum.

Mr. CUMMINS. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to his colleague?

Mr. KENYON. I do.

Mr. CUMMINS. I think if my colleague would describe, in a general way, how the serum is produced, Senators would have a better idea of the difficulties which attend its manufacture and the expense incident to it. It is not easy to establish a plant for the production of this medicine, nor is it inexpensive to operate one.

Mr. KENYON. I am very glad my colleague has made that suggestion. I have been hurrying along, because I did not feel there was, on the part of the Senate, much interest in the subject.

Mr. SMITH of South Carolina. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from South Carolina?

Mr. KENYON. I do.

Mr. SMITH of South Carolina. The question as to the efficacy of this treatment was raised a moment ago, when the Senator from South Dakota [Mr. Sterling] asked whether this treatment had proved a success. Some time ago I happened to be present at an interstate meeting which was attended by the former Secretary of Agriculture, Mr. Wilson, when that very question was asked. He replied that where the serum used was prepared according to the formula recommended by the Department of Agriculture, and used as recommended by the department, it had proved a uniform success.

Mr. KENYON. I think very few instances can be found where it has not been a success where that kind of serum has been used.

Mr. SMITH of South Carolina. I thought force might be added to the argument made by the Senator who now has the floor by calling attention to that statement, coming, as it does, from perhaps the highest possible authority, because probably more of this serum has been used under his supervision than under the supervision of any other man. Secretary Wilson made that unqualified statement.

Mr. KENYON. I think that is true; and he was really a practical farmer.

In reply to the suggestion of my colleague [Mr. Cummins]—and that may answer other suggestions as to why this serum has not worked out better—I will say that the difficulties he suggests are true. The manufacture of hog-cholera serum is a very difficult and a very expensive proposition. In the first place, there must be an immune hog—I know this does not appeal to my friend from California, but I am going to go through with it, anyhow; that is, a hog that has been through hog cholera or that has been vaccinated and is immune. They take a cholera-infected hog and inject into the immune hog, by a very interesting process, through a vein in the ear, the blood of the cholera-infected hog, sometimes to the amount of a quart. Then the immune hog, with the cholera-infected blood within him, is kept for ten days or two weeks. Then commences the process of cutting off portions of his tail—which he never seems to enjoy—and the blood drops down into a sterilized bottle. That is the serum.

Mr. WORKS. I have not, I will say to the Senator, very much favored the serum treatment for man or beast.

Mr. KENYON. Then I was not so very much out of the way in my statement.

Mr. WORKS. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from California?

Mr. KENYON. I do.

Mr. WORKS. The Senator from Iowa seems to intimate that I am an unbeliever and not subject to conviction. That is a mistake. I am very much interested in what the Senator from Iowa is saying. I think this is a very interesting question and a very important one, and I am looking for light on the subject.

Mr. KENYON. I did not mean in any way to insinuate that the Senator was not looking for light, but I felt confident that he did not believe in the serum treatment, as a great many other people do not.

Mr. WARREN. May I ask the Senator a question?

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Wyoming?

Mr. KENYON. I do.

Mr. WARREN. As I understand, this serum is used largely as a preventive?

Mr. KENYON. Yes.

Mr. WARREN. To prevent the disease rather than to cure it?

Mr. KENYON. Yes.

Mr. WARREN. Perhaps the Senator will give us further information on that point.

Mr. KENYON. I have some figures on that. After the hog is sick, if he is only slightly sick, the serum is sometimes used, but after the disease has obtained a virulent form it is not used alone, but the virus is used, viz, the double or simultaneous treatment.

Mr. CLARK of Wyoming. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Wyoming?

Mr. KENYON. I do. He has rather a quizzical look on his face, and I think I will yield.

Mr. CLARK of Wyoming. My question is called forth by the to me unknown method of extracting or procuring hog-cholera serum. I can imagine that a large part of the expense attendant upon the operation would be the purchase of the hogs from which this serum could be obtained.

Mr. KENYON. Yes.

Mr. CLARK of Wyoming. How much of the serum can be obtained from one hog? I suppose it quits when the tail is exhausted?

Mr. KENYON. It depends upon the size.

Mr. CLARK of Wyoming. It depends upon the size of the tail, does it not?

Mr. KENYON. Oh, no; there is more to this than a mere tail. It is a very interesting tale, of course. [Laughter.]

Mr. CUMMINS. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to his colleague?

Mr. KENYON. I do.

Mr. CUMMINS. I wish my colleague would give the Senate some idea of the number of hogs that our own agricultural college has been compelled to secure in order to make this serum.

Mr. KENYON. I can not do it accurately. Can the Senator do so?

Mr. CUMMINS. The number is very large, is it not?

Mr. KENYON. Oh, yes; it is a very large number.

Mr. CUMMINS. I have not the number precisely in my mind, but it is a very large number, and the matter is attended with a great deal of expense.

Mr. KENYON. I would not attempt to say how many there were, but I know there were a great many.

Some who have used the serum treatment are so confident about it that they are selling hogs with a guaranty against cholera. I have seen a number of advertisements of that kind.

I desire now to give some of the practical results of this treatment. I had not intended to do it, but if it will excite a little interest, I am glad to do so.

The Government experimented in Pettis County, Mo., Montgomery County, Ill., and Dallas County, Iowa. They experimented on the healthy hogs with the two treatments, the serum alone and the double or simultaneous treatment, which is different from the serum treatment only in that the actual blood of the diseased hog is also injected into the hog under treatment as well as the serum. That is a very dangerous thing, of course, and can be done only by experts. Their figures were as follows:

In Pettis County, Mo., the number of healthy hogs experimented on with serum alone was 3,825. Of those 6 died, probably the natural result. In Montgomery County 943 were experimented on, of which 33 died. In Dallas County none were experimented on. The average loss was eight-tenths of 1 per cent. With the double treatment, in Pettis County they experimented on 500, and there were no losses; in Montgomery County, 3,711, with 36 losses; in Dallas County, 2,760, with no losses. Out of a total of 6,971 there were 36 losses, or five-tenths of 1 per cent.

As to diseased herds, they experimented with serum alone in Pettis County on 3,801 hogs, of which 597 died. That was even after the hogs were diseased, but not, I take it, to a very extended degree. In Montgomery County they experimented on 2,797, of which 610 died. In Dallas County they experimented on 4,959, of which 1,693 died. Out of 11,557 diseased hogs 2,910 died with the serum treatment alone, and with the double treatment, out of 7,026 hogs experimented on at the Missouri, Indiana, and Iowa stations, there were 204 lost—less than 2.8 per cent.

Dr. Charles H. Stange, in charge of the State Biological Laboratory at Ames, Iowa, sent me a statement as to their treatment, showing, first, the number treated with serum alone, the well and the sick, and then the number given the simultaneous treatment.

The total number of hogs treated in healthy herds was 1,887; the total number of hogs lost was 44. The total number of hogs treated in diseased herds was 3,680; the total number of hogs lost was 758, of which 986 were sick when they were treated, or a loss of 16¼ per cent, while the general run of loss in herds where hog cholera entered has been from 60 to 85 per cent. So the practical result of this treatment in our part of the country has been to reduce the loss from 60 to 85 per cent down to 16¼ per cent, even where the hogs were sick when treated, and to 2⅔ per cent where the hogs were treated before becoming sick.

I desire permission to insert in the Record at this point the returns of the experiments at Ames, and also the returns of the experiments by the Government in Ohio, Indiana, Missouri, and Iowa.

The PRESIDING OFFICER. If there is no objection, permission is granted.

(The matter referred to is as follows:)

Healthy hogs.

GOVERNMENT EXPERIMENTS.

	Hogs.	Died.
(1) SERUM ALONE.		
Pettis County	3,825	6
Montgomery County	943	33
Dallas County	.....	.....
Total	4,768	39
Per cent loss, 0.8.		
(1) SIMULTANEOUS.		
Pettis County	500	.....
Montgomery County	3,711	36
Dallas County	2,760	.....
Total	6,971	36
Per cent loss, 0.5.		

Diseased herds.

	Hogs.	Died.
(1) SERUM ALONE.		
Pettis County	3,801	597
Montgomery County	2,797	610
Dallas County	4,959	1,693
Total	11,557	2,910
Per cent loss, 25.		
(2) SIMULTANEOUS.		
Pettis County	.....	.....
Montgomery County	1,966	44
Dallas County	5,060	160
Total	7,026	204
Per cent loss, 2.8.		

EXPERIMENTS MADE AT AMES, IOWA.

Treatment.	Healthy herd.		Sick herd.		
	Number treated.	Number died.	Number treated.	Number died.	Number sick.
Serum alone	28	0	80	67	60
Do	25	0	110	15	12
Do	36	1	106	60	60
Do	12	0	32	8	4
Do	.....	.....	6	6	6
Do	.....	.....	18	0	18
Do	.....	.....	35	17	3
Do	.....	.....	53	30	10
Do	.....	.....	133	0	1
Do	.....	.....	46	30	44
Do	.....	.....	97	50	15
Do	.....	.....	150	75	30
Do	.....	.....	108	15	16
Do	.....	.....	63	7	36
Do	.....	.....	73	25	73
Do	.....	.....	93	43	87
Do	.....	.....	61	6	50
Do	.....	.....	50	0	1
Do	.....	.....	120	18	20
Do	.....	.....	340	20	105
Do	.....	.....	154	40	30
Total	101	1	1,928	532	681

Treatment.	Healthy herd.		Diseased herd.			Number died before treating.
	Number treated.	Number died.	Number treated.	Number died.	Number sick.	
Serum simultaneous	177	4	55	14	14	6
Do	60	0	75	40	3	1
Do	100	0	44	0	10	0
Do	1	0	73	1	1	0
Do	52	2	85	2	3	0
Do	166	1	144	1	39	6
Do	9	0	20	3	10	0
Do	146	0	82	5	5	2
Do	118	0	100	0	20	0
Do	122	16	112	26	40	18
Do	43	0	116	0	2	0
Do	76	5	40	2	3	0
Do	40	0	110	4	5	1
Do	23	0	60	4	3	0
Do	24	0	54	5	6	0
Do	5	0	110	50	65	7
Do	101	0	124	17	12	0
Do	145	0	78	8	10	1
Do	56	10	52	24	4	3
Do	155	2	45	0	15	0
Do	8	0	15	0	10	0
Do	15	0	150	30	25	5
Do	68	1	8	0	0	1
Do	75	0	.....	.....	.....	.....
Do	8	1	.....	.....	.....	.....
Do	13	0	.....	.....	.....	.....
Do	5	0	.....	.....	.....	.....
Do	70	1	.....	.....	.....	.....
Total	1,786	43	1,752	236	305	51
Total serum alone	101	1	1,928	532	681	.....
Grand total	1,887	44	3,680	758	986	51

Total number of hogs treated, healthy herds, 1,287.
Total number of hogs lost, healthy herds, 44; 2¾ per cent lost after treatment.
Total number of hogs treated in diseased herds, 3,680.
Total number of hogs lost in diseased herds, 758; 16½ per cent lost after treatment.
Total number of hogs sick when treatment was applied, 986.

Mr. KENYON. At this time there are 20 or 30 States engaged in the distribution of hog-cholera serum to farmers, and their reports are not available. I have shown on this map the different States and the amounts they have expended in serum plants. I wish to insert in the Record, without reading, a list of the States having serum laboratories and a list of the States which purchase serum for distribution but do not manufacture it.

The PRESIDING OFFICER. If there is no objection, it will be so ordered.

(The matter referred to is as follows:)

States.	Money invested in serum laboratory.	Sum suggested by local officials as amount that could be spent with profit.	States.	Money invested in serum laboratory.	Sum suggested by local officials as amount that could be spent with profit.
California	$16,000	$20,000	Kentucky	$15,000	.....
Nebraska	2,000	50,000	Tennessee	10,000	$100,000
Minnesota	5,000	.....	Alabama	2,000	.....
Kansas	5,000	.....	Georgia	6,000	25,000
Iowa	48,000	1,000,000	South Carolina	1,000	100,000
Missouri	5,000	350,000	Florida	15,000	25,000
Arkansas	1,000	.....	Louisiana	2,000	.....
Illinois	30,000	.....	Montana	.....	10,000
Michigan	2,000	10,000	Oregon	.....	15,000
Indiana	25,000	100,000	North Dakota	.....	10,000
Ohio	100,000	200,000	New York	.....	25,000
Pennsylvania	3,000	.....	Delaware	.....	15,000

The following States have small investments for the manufacture or distribution of hog-cholera serum: Delaware, a very small sum from funds of live stock sanitary board, amount not known; Maryland, $5,000; Mississippi, $5,000; New York, no definite amount, meager fund available from college appropriation; North Carolina, $1,500; North Dakota, $3,000; Oklahoma, $3,750; Wisconsin, initial appropriation, $600; South Dakota, amount not known.

The following States do not manufacture, but purchase serum for distribution: Maine, amount not known; Vermont, no definite amount; Virginia, $3,000 to begin, subsequent fund derived from sale of serum.

Mr. KENYON. The Bureau of Animal Industry has recently been advised that the State of Missouri has increased her appropriation for the manufacture of hog-cholera serum to $50,000 and that the State of Idaho has appropriated the sum of $5,000 for the manufacture of serum in that State.

The figures given as to the investments in the various States show that they are awake to the conditions and are doing what they can to thwart this disease. It is probable that the various States can manufacture the serum necessary.

If the States can take care of the manufacture of the serum, and the Federal Government can cooperate in sending out men to instruct in the use of the serum, to instruct as to sanitary conditions, quarantine, and the general treatment of hog cholera, and if the regulations in relation to the manufacture and shipment of serum are enforced, it would seem that this cooperation of the State and Federal Governments can blot out the disease.

I have suggested before that the question is frequently propounded, whether the serum treatment is good for anything. I have had letters from farmers stating that their herds had been lost through the use of "fake" serums, and I know of such cases. I submit some letters showing the use of the serum in various States and the good results coming therefrom; also letters showing the bad results therefrom.

Mr. WORKS. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from California?

Mr. KENYON. I do.

Mr. WORKS. Is this serum included?

Mr. KENYON. What serum does the Senator mean?

Mr. WORKS. I refer to the serum that has been spoken of here as recommended by the Agriculture Department as being effective.

Mr. KENYON. No.

Mr. WORKS. I wondered whether or not that was included.

Mr. KENYON. No; that is not included. This serum is manufactured in different places and is shipped in interstate commerce. The bad and "fake" serum treatment is, of course, the wrong thing, and the farmer must be certain that the treatment is right before he uses it. I feel that this should be covered in some way by Government inspection. It is, of course, fatal to inoculate a herd with bad serum. You might as well vaccinate a human being with bad virus.

I ask permission to insert at this point some letters from farmers and veterinary surgeons against the serum treatment, as it is only my purpose to present all sides of this question, and the discussion raging around the serum treatment is indicative of the necessity of further experiments and more work. I also wish to insert some newspaper clippings on the subject.

The PRESIDING OFFICER. If there is no objection, the request will be granted.

Mr. KENYON. Upon reflection, I will ask later to have these inserted.

The following extract is from a letter written by the professor of veterinary science at the Kansas Agricultural College, who is in charge of hog-cholera serum production in the State of Kansas:

I estimate that the average dose has been in the neighborhood of 30 cubic centimeters per hog, which gives as a result approximately 275,000 head of hogs vaccinated by the simultaneous method and 275,000 vaccinated with the serum alone. I estimate that, under the conditions and the general infection of this State, a conservative estimate of the number of hogs saved through the vaccination would be at least half the number vaccinated, or 275,000. This is certainly a conservative estimate.

That would be a saving to Kansas of over $2,000,000.

The State veterinarian of Ohio writes as follows:

It is my opinion that at least 50 per cent of the animals in infected herds were saved by the serum, and I believe, further, that this is a very low estimate. Taking this as a basis, then, we have the following: Of the total number of swine treated to date (313,000) 72 per cent, or 225,360 swine, were in infected herds. It is reasonable to assume that at least two-thirds of these would have died from the effects of disease had they not been treated with serum. In other words, there would have been a loss of 150,240 swine, with an average value of at least $10, or $1,502,400. This does not take into account the healthy herds which were treated, nor does it take into account the extra value of the large per cent of pure-bred or registered herds.

The following is an extract from the report of the agricultural experiment station of the Agricultural College of California:

A conservative estimate of the number of hogs saved by the antihog-cholera serum is 30,000 head. The cost of the serum to farmers, in addition to that distributed free as provided by law, has been about $33,000. Estimating the average value of a hog in California at $9.20, the protection provided these 30,000 hogs has meant a saving to the ranchers of at least $240,000. This does not include the profits resulting from the breeding and profitable feeding of the hogs saved.

If in all cases the serum had been used as the station recommends—that is, before the disease has gained entrance to the herds—then 90 per cent of all hogs owned by these farmers would probably have lived instead of only 50 per cent of the untreated hogs and 91.3 per cent of the treated; that is, about $350,000 would have been saved in addition to the $240,000 mentioned above.

As a representative from a great agricultural State—the greatest in the Union—I have been anxious not to raise hypercritical objections relative to various kinds of treatments, but rather to help provide the Agricultural Department with a large enough appropriation for them to carry on their experiments with relation to treatment of this disease that is dissipating the herds of hogs of the farmers of my State. I am doing so without advocating any particular kind of treatment, but merely desirous to have Congress furnish the sinews of war for a fight against this element in the high cost of living. The Bureau of Animal Industry, with a large appropriation, can extend the operations now being carried on in Dallas County, Iowa, Pettis County, Mo., and Montgomery County, Ind., as well as their experiments in Nebraska, to other counties in these States, and can also carry the work to other States in the Union where this disease is creating such havoc among swine. Further, the Bureau of Animal Industry and the agents sent out can cooperate with the State agricultural colleges of the different States and with the county agricul-

tural agents located throughout the country. These agents are under the control of the department and in direct touch with them. In the experiments in Dallas County, in our State, they were hampered for lack of funds.

I received a letter last year from a member of the legislature of our State, living in Dallas County, who is greatly interested in this proposition, pleading that I secure more money for their experiments. They were then in the midst of their experiments. I took up the matter with the Secretary of Agriculture, and in reply he wrote as follows:

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., October 31, 1913.

Hon. W. S. KENYON,
United States Senate.

DEAR SENATOR KENYON: Replying to your letter of October 27, 1913, regarding the hog-cholera demonstration work being carried out in Dallas County, Iowa, it is not possible to set aside additional funds for use in Dallas County during the present fiscal year. The department has already expended for the work in Dallas County a very considerable proportion of the fund appropriated by the last Congress for hog-cholera demonstration work. We can not allot additional funds for the Iowa experiment without detriment to the work in other States. With the onset of cold weather, I believe that hog cholera will be much less prevalent, and additional funds at this season of the year would be of little avail. It may be that if Congress decides to continue this work during the next fiscal year, the department will need some additional funds to be available in the spring of 1914, as it is essential for success to begin the eradication work early in the year.

Very sincerely,

D. F. HOUSTON, *Secretary.*

As has been said by the distinguished Senator from Ohio, this money is needed soon, as it is essential for success to begin the eradication work early in the year. The experiments in Dallas County could not be carried out as was desired, and as should have been done in order to attain the best results, because of the lack of a few thousand dollars.

I desire to place in the Record some suggestions from the Department of Agriculture as to treatment of hog cholera.

The PRESIDING OFFICER. If there is no objection, leave is granted.

(The matter referred to is as follows:)

PREVENTION AND TREATMENT OF HOG CHOLERA.

GENERAL PREVENTIVE MEASURES.

All that is necessary to prevent hog cholera is to keep the germ of the disease away from the herd. It has been shown that in the vast majority of cases this germ is transported mechanically, in the bodies of sick hogs and on the feet of men or animals including birds. It thus follows that the chances of an outbreak of hog cholera will be greatly lessened, if not completely avoided, if a herd is protected from these carriers of the infection. The enforcement of a complete quarantine is, however, not practicable under average farm conditions, and the best that can be hoped for is the lessening of the opportunity for infection by placing the herd on a part of the farm that will be the least accessible to men or animals from other farms. Hog lots should never be located near public roads if this can be avoided. All newly purchased stock should be kept separate from the main herd for at least 30 days.

In addition to protecting the herd by methods of quarantine, careful attention should be given to the general health of the herd. The hogs should be provided with clean, dry sleeping places and the lots and feeding troughs should be kept clean. It is well occasionally to scatter slaked lime about the lots and to wash

and disinfect the troughs. Probably the best disinfectant for this purpose is the compound solution of cresol (U. S. P.), which can be prepared at any drug store. One part of this should be mixed with 30 parts of water and the troughs scrubbed with it. The disinfectant is then washed out of the troughs with water.

After an outbreak of hog cholera the yards and pens should be thoroughly cleaned, all dead hogs should be burned or buried deep with quicklime, the litter should be collected and burned, and lime scattered freely over the ground. The sheds and hog houses should be washed thoroughly with the solution of cresol, as above described, before new stock is brought on the place. Feeding troughs that have been used by sick pigs should be burned if made of wood, but if this is not practicable they should be scrubbed clean and thoroughly soaked with the cresol solution, the latter being washed out before the troughs are used again.

It is possible to start an outbreak of hog cholera in a herd by bringing hogs on the farm that have had the disease and have apparently recovered. We have no definite information concerning the length of time that such hogs may be able to communicate the disease to others, but for safety's sake two or three months should be allowed to elapse after complete recovery before placing such an animal with susceptible pigs, and then only after washing or dipping in a disinfectant solution (compound solution of cresol, 1 to 100).

In Farmers' Bulletin 24, Dr. D. E. Salmon gave the following formula for a medicine which was used many years ago as a preventive and cure for hog cholera:

	Pounds.
Wood charcoal	1
Sulphur	1
Sodium chloride	2
Sodium bicarbonate	2
Sodium hyposulphite	2
Sodium sulphate	1
Antimony sulphide (black antimony)	1

Experience has shown, however, that this medicine is not to be regarded as a cure or preventive in the true sense of the words, but it is nevertheless a very good condition powder. This powder is mixed with the feed in the proportion of a large tablespoonful to each 200 pounds weight of hogs to be treated, and should not be given oftener than once a day. This medicine can not be relied upon to prevent the occurrence of disease, except in so far as it improves the general health of the hogs. Therefore, even though this remedy be used, strict attention must be given to quarantine and sanitary measures if the disease is to be warded off when in the neighborhood.

PREVENTION BY INOCULATION.

Careful and persistent attention to general preventive measures, such as quarantine, disinfection, proper feeding, etc., on the part of farmers generally would no doubt result in a material reduction in the yearly losses from hog cholera, and the importance of observing these precautions can not be overestimated. However, as it is regarded as impracticable to enforce a general and completely effective quarantine, the Bureau of Animal Industry has endeavored for a number of years to find a medicine or serum which could be used for preventing hog cholera or for curing hogs sick of that disease. It is a well-known fact that hogs which have recovered from hog cholera are thereafter immune against that disease. The experiments of the Bureau of Animal Industry resulted in the discovery that when such immunes are injected with blood from a sick hog the immune is not made sick, but as a result of this injection its blood acquires the power to protect other hogs from hog cholera. The details of the early experiments which served to establish this fact are given in Bureau of Animal Industry Bulletin 102, which can be obtained only from Superintendent of Documents, Government Printing Office, Washington, D. C.; price, 15 cents. Since that bulletin was issued a great deal of additional work has been carried out, and it has been established beyond question that the early observations were correct and that it is entirely possible to protect hogs if they are treated with serum from a properly treated immune hog.

The method of producing this serum is briefly as follows:

A vigorous immune hog—that is, one which has recovered from an attack of hog cholera or one which has been exposed to the disease without contracting

it—is treated with a large quantity of blood from a hog sick of hog cholera. After a week or two blood is drawn from the immune by cutting off the end of the tail. After standing, the blood clot is removed and the serum or fluid portion of the blood is mixed with a weak solution of carbolic acid and filled into sterilized bottles. We have in this fluid portion of the immune's blood the serum which will protect hogs from hog cholera. This serum is used in either one of two ways, namely, (1) the serum inoculation, and (2) the simultaneous inoculation. These two methods of treatment are carried out as follows:

SERUM INOCULATION.

The hogs which are to be protected are injected on the inside of the hind leg with a suitable dose of the serum alone. This injection will serve to protect hogs from hog cholera for several weeks and, in some cases, for a longer time. But if the hog is not exposed to hog cholera within a few weeks after this treatment, the immunity which is conferred by the serum will gradually lessen in degree and the hog may again become susceptible. If, however, the hog is exposed to hog cholera within a short time after the injection of the serum, the immunity becomes, so far as experiments have shown, of permanent and lifelong duration.

From what has been said it will be seen that the injection of the serum alone is especially to be recommended in cases where there is immediate danger of exposure, especially when valuable hogs are carried to fairs and in herds where the disease has already broken out but has not progressed very far. In herds of this character all of the well animals may be treated, and even in the case of slightly sick animals much good may be accomplished by the serum injection.

SIMULTANEOUS INOCULATION.

In this form of vaccination the same serum is used as is employed when the serum alone is used, but in addition to the serum there is injected on the opposite side of the body, in the same manner as the serum, a very small amount of blood taken from a hog sick of hog cholera. This simultaneous injection of serum and virulent blood confers upon the injected pig a permanent and lasting immunity, and is therefore to be recommended in cases of well herds which may not be exposed for some months after the treatment.

SAFETY OF THE METHODS.

Properly prepared serum when used alone, without the employment of blood from a sick hog, is entirely harmless and incapable of giving rise to an attack of hog cholera. Nor does this injection interfere in any way with the growth of the treated hogs.

The simultaneous inoculation, involving as it does the use of a disease-producing virus, requires much more care when employed than does the serum-alone inoculation, for, if through careless preparation or from any other cause the serum should be weaker than is required, injury to the vaccinated hog might result. This danger, which is extremely slight when carefully tested serum is used, is met with in practically all processes which are now employed for producing a permanent and lasting protection against infectious diseases, and although it would be very desirable to eliminate even this slight element of danger, we can hardly expect to do this without at the same time sacrificing to some extent the high degree of immunity and the prolonged protection which follows the simultaneous method in its present form.

Practically, in deciding which method to use one must be governed largely by the length of immunity which is required. If this is needed for only a few weeks, or if the treatment can be repeated at short intervals, as in the case of exceptionally valuable pure-bred hogs, where the increased cost would not be objected to, the serum alone may be used. In other cases the simultaneous method is recommended. In either process of vaccination it is considered highly desirable for the treatment to be applied by competent veterinarians who have had special training in this class of work, and only such skilled men should employ the simultaneous process. After treatment by the simultaneous method the herd should be kept under observation for 10 days or 2 weeks, and if any of the inoculated hogs show serious symptoms of disease the herd

should be immediately re-treated with the serum alone. When properly performed, the simultaneous inoculation does not seem to injure the hog or to interfere with its growth in any way, and if the precautions indicated above are taken it is regarded as safe enough for practical use.

PRACTICAL TESTS OF BOTH METHODS.

As before stated, the serum has been tested by the Bureau of Animal Industry in an extended manner on farms under practical conditions, both the serum inoculation and the simultaneous inoculation being employed at different times. In these practical experiments a number of hogs were generally left untreated, so that we might be sure that the herd actually had hog cholera and also be able to determine better the action of the serum. In these tests approximately 2,000 hogs, located on 47 separate farms, were treated. Some of the herds treated were apparently perfectly well at the time, but were in a neighborhood where hog cholera was prevalent. In other cases the disease was just beginning, as indicated by the sickness of one or two animals. In others the disease had progressed to a considerable extent, a number of the animals in the herd being sick at the time of treatment; and in still another class of herds the hogs had been exposed to disease by contact with sick animals, but had not developed symptoms of illness at the time of treatment. The tests were carried out under farm conditions, and aside from the serum injections no attempt was made to save the treated hogs. Upon summarizing the results at the end of the season it was found that more than 85 per cent of the treated hogs had been saved in herds that were sick at the time of treatment, while of the hogs left untreated in the same herds only 25 per cent survived; more than 95 per cent of the treated animals were saved in the herds which had been exposed at the time of treatment, while of the untreated hogs in the same herds only 11 per cent survived; of the treated hogs in the herds that did not become exposed until after the treatment none were lost, whereas only 35 per cent of the untreated hogs in the same herds survived.

While in practice the serum may not always give as good results as these, there can be no doubt that if used properly and in the early period of an outbreak of hog cholera it will effect a very large saving.

CONCLUSION.

Since these results were obtained the department has brought this method of preventing hog cholera to the attention of the various State experiment stations and live-stock sanitary boards throughout the country, and has proposed to them that they take up this work and prepare a serum for the benefit of hog raisers, as the preparation of serum by the Federal Government on a large enough scale to supply the needs of the entire country seemed to be impracticable. As a result of this, a number of the States have taken up the work, and in practically all cases where a thorough test has been made they have confirmed the results obtained by the department with this method. We therefore feel safe in saying that this process will prevent hog cholera, provided due care is given to the preparation of the serum and to its application.

The serum preparation is of such a nature that it should not be undertaken by farmers themselves, but should be under the control of trained men who have had experience in bacteriology and who are also thoroughly familiar with the diseases which affect hogs. For these reasons no attempt has been made in this paper to describe the details of the serum production.

At the present time it is impossible to state definitely just what the cost of this serum should be. This will undoubedly vary in different localities, depending upon local conditions, such as the price of hogs, the cost of feed, and similar minor considerations; but it has been estimated, and this estimate has been confirmed by at least one of the States now conducting this work, that the serum can be made for 25 cents a dose. We do not regard this as the minimum limit of cost for the serum production, but rather hope that with increased knowledge of the disease and wider experience with the serum production this estimate will be materially reduced.

Finally, it should be remembered that this serum is to be used especially as a preventive, and that little success can be expected in herds which are badly affected with hog cholera. An early application is essential, and in the States which have taken up this work the farmers should notify the proper authorities immediately upon their hogs becoming ill, so that they may be treated at once.

Inasmuch as the serum described herein is a comparatively new substance, it is not to be expected that success will always follow its use; but as it has been already definitely proved that hog cholera may be prevented with this serum, the failures, if they occur, will be caused by local conditions or variations in the details of serum production, which can be corrected. Those who are interested in the subject are urged to cooperate with the State authorities who have control of this work and to assist them in their efforts to produce a reliable serum. It is only through such intelligent cooperation that we can expect to attain the final result which is aimed at, namely, the eradication of hog cholera as a serious menace to the hog-raising industry in this country.

NOTE.—The United States Department of Agriculture is not preparing anti-hog-cholera serum for distribution. Those who wish to obtain serum should apply to their respective State veterinarians or agricultural colleges.

Mr. KENYON. The Senator from Ohio [Mr. Pomerene], as he has said, has introduced a bill to appropriate $500,000 for this work. I introduced a bill very early in the session to appropriate $750,000 for it. Possibly $500,000 is as much as could be expected from Congress in these times of economy. We have introduced these bills now, without waiting for the Agricultural appropriation bill, because of the very thing the Senator from Ohio has so well suggested and I have so feebly suggested—that a dollar expended in the spring will be more effective than three or four dollars expended in July, and whatever is done should be done speedily.

It would seem rather a "penny-wise and pound-foolish" policy to refuse this appropriation on the ground that we must economize, and consequently permit the agricultural interests of the country to suffer. As the distinguished Senator from Ohio has suggested, we long ago reached the point in this country where the people regarded anything that detrimentally affected the agricultural interests of the country as affecting the entire people. We must be a great agricultural people or we shall not be a great people at all.

I have suggested before—and I know it is a somewhat delicate subject—that the money spent in sending out garden seeds for the last four years would have been sufficient to eradicate hog cholera in this country. It would seem more important to get rid of this scourge than it is to send out a few seeds that never were known to grow, anyhow, and are, in fact, merely political seeds, designed to reap a harvest of votes. I am glad the present Secretary of Agriculture has recommended practically the abolition of the free-seed practice.

Mr. JONES. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Washington?

Mr. KENYON. Certainly.

Mr. JONES. I will suggest to the Senator that the present Secretary of Agriculture is not the first Secretary of Agriculture who has actually recommended it.

Mr. KENYON. The other Secretaries did not seem to have so much power as the present one; but now, if it shall be made a party matter, to be determined in caucus, I suppose we may get rid of the practice.

Mr. JONES. I shall be very much surprised if the present Secretary has the power the Senator thinks he has in another body that we do not dare mention here. I do not think there will be any difficulty in this body, so far as that is concerned.

Mr. KENYON. To the credit of this body be it said that they voted to strike the appropriation out of the last appropriation bill.

Mr. JONES. Yes; and I think we were given some assurance here, were we not, when the bill was brought in in conference, that the matter was to be taken up rather seriously at this session? That is my recollection. At all events, I hope that will be done.

Mr. KENYON. As seriously as any free-seed matter can be taken up.

If we must practice economy, I want to appeal to our Democratic friends—and I believe in economy as much as they do—not to practice it on this matter. We might practice it to some extent on the franking privilege; we might practice it by not printing so many things in the Record; we might get along with a few less public buildings and vote this money for a real purpose that is for the benefit of the entire Nation—to everyone who is compelled to buy and eat meat.

I hope the bill of the Senator from Ohio or some bill like it will be passed. I have no pride of opinion at all in the bill I have introduced. I shall be glad to see his bill passed. We of our State are anxious for results. I shall cordially cooperate in any movement that will furnish liberal funds to the Government, so that it may cooperate with the States in fighting this plague.

It is not merely a question of the Northern States. If it were, I am sure our southern friends would help us; but they are suffering likewise. We have never hesitated to vote large sums of money where there was a great public necessity. As I have said, millions have been spent in eradicating the boll weevil and the Texas tick. In times of distress from overflow of water we have always been generous in voting liberal appropriations. Those were more or less the South's calamities. This is partly their calamity, and to a larger extent our calamity in the North, but it is really a calamity of the American people.

The American hog has been described as the mortgage raiser, which is true. He has been compelled to go out of that business for the last few years and has been hurried to his reward entirely too fast. We are only asking now that Congress help to restore him to the proud position he once occupied—that of the mortgage raiser of the American farm and the prosperity producer of the American farmer.

Mr. SMOOT. Before the Senator finishes I should like to ask him a question, with his permission.

Mr. KENYON. Certainly.

Mr. SMOOT. I have before me the bill introduced by the Senator from Ohio [Mr. Pomerene], calling for an appropriation of $500,000 for the purpose of providing and administering remedies for hog cholera. Does the Senator believe the bill ought to provide for administering remedies for hog cholera or that it ought to provide simply the remedy itself?

Mr. KENYON. If we could provide a remedy, I should like to see it done. That is a great question.

Mr. SMOOT. That is what the appropriation is asked for.

Mr. KENYON. I think what the Senator from Ohio has in mind is the sending out of agents for demonstration work, as has been done by the Government, to instruct the farmer as to the treatment, and to instruct the State veterinarians, so that they may properly use the serum, and matters of that kind.

Mr. SMOOT. The bill specifically provides for administering the remedies. I thought that was rather uncalled for, because if the Government furnished the serum to each of the States the State itself, through its agencies, could administer the remedy.

Mr. KENYON. That is true, if the State officers are properly instructed by those who are familiar with the work. I will say to the Senator that in Dallas County they secured their serum from the State agricultural college. They could not secure enough of it, although finally the State agricultural college gave them the preference. The Government's special agents were there demonstrating among the farmers. They went right around among the farmers, where there were 20,000 sick hogs, showing how the serum should be used and instructing the farmers about it. That was the work the Government did there. It had general charge. That is what is intended—merely to bring about cooperation, the Government doing part of the work, the State doing its part, and the farmer doing his part.

Mr. WARREN. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Wyoming?

Mr. KENYON. I do.

Mr. WARREN. I assume the idea of the Senator from Iowa in his measure is to carry this appropriation into effect something like the appropriation for the destruction of the boll weevil has been carried into effect and executed. That is, the Government sends out demonstrators, not only to assist in the demonstration of the remedy for the boll weevil, but to instruct the planter as to the season, how to plant the crop, and how to raise it. While I am not engaged in the cotton business, I understand that has been very effective.

Mr. KENYON. In other words, to make farm demonstrations.

Mr. WARREN. As I understand from the evidence that was given last year in regard to hog cholera before the Committee on Agriculture and Forestry, the remedy is a very expensive one, and must be most carefully administered; but it seems that the care of the herd, the burning of the bodies of the hogs that die, and all that, is something of which the farmers generally are ignorant, and in which they need some instruction. I assume that is what is intended by this bill, and I think the object is a worthy one.

Mr. POMERENE. Mr. President——

The PRESIDING OFFICER. Does the Senator from Iowa yield to the Senator from Ohio?

Mr. KENYON. I do.

Mr. POMERENE. The primary object of the bill is to get Federal aid for the purpose of eradicating this disease. I take it that if the appropriation can be used in whatever way the Agricultural Department may deem most efficacious, under any restraints that Congress in its wisdom may see fit to impose, there will not be any difficulty in determining the method in which it should be done. I think the Federal authorities should act in conjunction with the State authorities, and I have no doubt they will do so.

Mr. VARDAMAN. I wish to ask the Senator from Ohio, with the permission of the Senator from Iowa, whether an appropriation ever has been made before for purposes of this character?

Mr. POMERENE. Yes; last year $40,000 was appropriated in an appropriation bill. The Senator from Iowa and myself tried to have the amount increased to $100,000, and the Senate voted the increase, but in conference it was reduced to $75,000.

Mr. VARDAMAN. That was to be expended under the direction of the Agricultural Department?

Mr. POMERENE. It was to be expended, as I now remember, under the direction of the Agricultural Department.

Mr. BURTON. I have the provision before me, Mr. President. It is on page 5 of the agricultural appropriation bill. After the general appropriation for inspection, quarantine work, etc., it says:

Provided, That of this sum not less than $75,000 shall be set aside for demonstrating the best method of preventing and eradicating hog cholera.

So the appropriation was not less than $75,000 out of a total appropriation of $654,000.

Mr. SMOOT. I will suggest to the Senator that I believe the wording of the proviso in the agricultural appropriation bill is very much better and more comprehensive than the wording of this bill. I think that covers the situation exactly.

Mr. VARDAMAN. The Senator is not after wording. He wants money.

Mr. KENYON. Mr. President, I have taken more time than I intended. I have a great mass of details that I have not gone into, some of which I should like to put in the record and some not. I ask permission, as an appendix to my remarks, to insert some of this matter. I shall not insert a great deal of it, but I should like to insert such as may seem proper.

The VICE PRESIDENT. Is there any objection? The Chair hears none, and permission is granted.

(The matter referred to is as follows:)

APPENDIX.

AMES, IOWA, *December 19, 1913.*

Senator WILLIAM S. KENYON,
United States Senate, Washington, D. C.

DEAR SENATOR KENYON: I have your kind letter of December 15 and am sorry that I have been unable to get any more reports on herds vaccinated with our own serum. I believe, however, that those that are inclosed will give you a representative list, and I would not anticipate much change in the average if the list were larger. I desire to say also that these figures are not selected in any way, but all of the reports on the use of our own serum which we have been able to receive thus far have been included.

You will notice that the loss in the healthy herds treated by the combined serum and virus method was close to 2 per cent, and if two herds were excluded, in which the administration was not strictly according to our directions, the percentage of loss after treatment would be very much less. To my mind these two columns of figures speak volumes in favor of the treatment and also emphasize the importance of careful supervision of this work in the field. You will notice also that the results of the serum alone and the serum-and-virus method in diseased herds show a loss following the use of the serum-virus method, which is much smaller than by the serum-alone method.

I am taking the liberty to inclose a report made by Dr. Dorset, in Chicago, in regard to the work that is being done in the States of Indiana, Missouri, and Iowa. No doubt Dr. Dorset could give you additional valuable information.

Again referring to the inclosed table, I wish to call attention to the fact that only 16¼ per cent, including sick hogs, were lost in diseased herds following application of the treatment. I believe that it is safe to estimate that without the treatment the losses in these same herds would have amounted to at least between 80 and 90 per cent, as the disease has been very virulent this year.

You may be interested to know that I am making arrangements with the State agricultural department to gather figures in regard to the prevalence of hog cholera in the State this year, and the number of animals lost. I am sorry that we do not have these figures available at the present time. In addition to this, the college here is making a canvass of the losses in this State, and will see that a copy giving the results of this canvass is sent you at an early date.

If I can be of further assistance to you, I wish you would not hesitate to write me.

Very truly, yours,

C. H. STANGE.

[United Stataes Department of Agriculture, Bureau of Animal Industry.]

REGULATIONS GOVERNING THE PREPARATION, SALE, BARTER, EXCHANGE, SHIPMENT, AND IMPORTATION OF VIRUSES, SERUMS, TOXINS, AND ANALOGOUS PRODUCTS INTENDED FOR USE IN THE TREATMENT OF DOMESTIC AIMALS, EFFECTIVE JULY 1, 1913.

UNITED STATES DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., May 31, 1913.

Under authority of the act of Congress approved March 4, 1913, entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1914" (37 Stat., 832), the following regulations are hereby issued for the purpose of enforcing the provisions of said act governing the preparation, sale, barter, exchange, shipment, and importation of viruses, serums, toxins, and analogous products intended for use in the treatment of

domestic animals. These regulations, which for the purpose of identification are designated as B. A. I. Order 196, shall become and be effective on and after July 1, 1913.

D. F. HOUSTON,
Secretary of Agriculture.

REGULATION 1.

For the purpose of these regulations viruses, serums, toxins, and analogous products shall include all viruses, serums, toxins, and analogous products intended for use in the treatment of domestic animals. Among such analogous products are antitoxins, vaccines, tuberculins, mallein, microorganisms, killed microorganisms, and products of microorganisms.

REGULATION 2.

No person, firm, or corporation shall prepare, sell, barter, or exchange in the District of Columbia or in any Territory of the United States or in any place under the jurisdiction of the United States or ship or deliver for shipment from one State or Territory or the District of Columbia to any other State or Territory or the District of Columbia any virus, serum, toxin, or analogous product manufactured within the United States unless and until the said virus, serum, toxin, or analogous product shall have been prepared at an establishment holding an unsuspended and unrevoked license issued by the Secretary of Agriculture.

REGULATION 3.

Each establishment in the United States at which any virus, serum, toxin, or analogous product is prepared shall make application in writing to the Secretary of Agriculture for a license. When one proprietor conducts more than one establishment a separate application shall be made for a license for each establishment. Blank forms of application will be furnished upon request addressed to the Bureau of Animal Industry, Washington, D. C.

REGULATION 4.

SECTION 1. A license will not be issued unless the condition of the establishment and the methods of preparation are such as reasonably to insure that the product will accomplish the objects for which it is intended, and that such product is not worthless, contaminated, dangerous, or harmful.

SEC. 2. A license will be issued only after inspection of the establishment by a duly authorized officer, agent, or employee of the Bureau of Animal Industry has shown that the condition and equipment of the establishment and the methods of preparation are in conformity with these regulations.

REGULATION 5.

SECTION 1. Each license shall terminate at the end of the calendar year during which it is issued.

SEC. 2. A license shall be reissued only after inspection of the establishment by a duly authorized officer, agent, or employee of the Bureau of Animal Industry.

SEC. 3. A license will not be issued for the preparation of any virus, serum, toxin, or analogous product if advertised so as to mislead or deceive the purchaser or if the package or container in which the same is intended to be sold, bartered, exchanged, or shipped bears or contains any statement, design, or device which is false or misleading in any particular.

REGULATION 6.

Licenses shall be in the following form:

United States Veterinary License No. —.

WASHINGTON, D. C., ———, 19—.

This is to certify that, pursuant to the terms of the act of Congress approved March 4, 1913 (37 Stat., 832), governing the preparation, sale, barter, exchange, shipment, and importation of viruses, serums, toxins, and analogous products

intended for use in the treatment of domestic animals. ——— ——— is hereby licensed to maintain at — ——— Street, city or town of ———, State of ———, an establishment for the preparation of ——— during the calendar year 19—.

This license is subject to suspension or revocation if the licensee violates or fails to comply with any provision of said act approved March 4, 1913, or of the regulations made thereunder.

[L. S.]

———,
Secretary of Agriculture.

Countersigned:

——— ———,
Chief Bureau of Animal Industry.

REGULATION 7.

SECTION 1. Each separate container of virus, serum, toxin, or analogous product prepared, sold, bartered, exchanged, shipped, or delivered for shipment shall bear the true name of the product and the license number assigned by the department, in the following manner: "U. S. Veterinary License No. —," or an abbreviation thereof authorized by the Bureau of Animal Industry.

SEC. 2. Each separate container of virus, serum, toxin, or analogous product shall bear a serial number affixed by the licensee for identification of the product with the records of preparation thereof. Each container shall also bear the "return date."

REGULATION 8.

A license will be suspended or revoked (1) if it appears that the construction of the establishment licensed is defective, or if the establishment is improperly conducted; (2) if the methods of preparation are faulty, or if the products contain impurities or lack potency; (3) if the products are advertised or labeled so as to mislead or deceive the purchaser in any particular; (4) if the license is used to facilitate or effect the preparation, sale, barter, exchange, or shipment of any worthless, contaminated, dangerous, or harmful virus, serum, toxin, or analogous product; or (5) if the licensee violates or fails to comply with any provision of said act approved March 4, 1913, or of the regulations made thereunder.

REGULATION 9.

SECTION 1. Each importer of any virus, serum, toxin, or analogous product shall make application in writing to the Secretary of Agriculture for a permit. The application shall specify the port or ports of entry at which the imported articles will be cleared through the customs. Blank forms of application will be furnished upon request addressed to the Bureau of Animal Industry, Washington, D. C.

SEC. 2. Each application for a permit shall be accompanied by the affidavit of the actual manufacturer, produced before an American consular officer, stating that the virus, serum, toxin, or analogous product mentioned is not worthless, contaminated, dangerous, or harmful; whether the product was derived from animals; and if so derived, that such animals have not been exposed to any infectious or contagious disease, except as may be essential in the preparation of the product and as specified in the affidavit.

SEC. 3. Each application for a permit shall be accompanied by the written consent of the actual manufacturer that properly accredited officers, agents, and employees of the Department of Agriculture shall have the privilege of inspecting, without previous notification, all parts of the establishment at which such virus, serum, toxin, or analogous product is prepared, and all processes of preparation of such products, at such times as may be demanded by the aforesaid officers, agents, or employees.

SEC. 4. Each permit shall terminate at the end of the calendar year during which it is issued.

REGULATION 10.

Permits shall be in the following form:

United States Veterinary Permit No. —.

WASHINGTON, D. C., ———, 19—.

This is to certify that pursuant to the terms of the act of Congress approved March 4, 1913 (37 Stat., 832), governing the preparation, sale, barter, exchange,

shipment, and importation of viruses, serums, toxins, and analogous products intended for use in the treatment of domestic animals, ———, of ———, State of ———, is hereby authorized, so far as the jurisdiction of the Department of Agriculture is concerned, to import ———, manufactured by ———, of ———, into the United States through the port of ——— during the calendar year 19—.

This permit is subject to suspension or revocation if the permittee violates or fails to comply with any provision of the said act approved March 4, 1913, or of the regulations made thereunder.

[L. S.]

———— ————,
Secretary of Agriculture.

Countersigned:

————— ————,
Chief Bureau of Animal Industry.

The Bureau of Animal Industry shall give prompt notice of the issue of each permit to collectors of customs at the ports of entry named therein.

REGULATION 11.

SECTION 1. Each separate container of virus, serum, toxin, or analogous product imported shall bear the true name of the product and the permit number assigned by the department, in the following manner: "U. S. Veterinary Permit No. ——," or an abbreviation thereof authorized by the Bureau of Animal Industry.

SEC. 2. Each separate container of virus, serum, toxin, or analogous product imported shall bear a serial number affixed by the manufacturer for identification of the product, with the records of preparation thereof. Each container shall also bear the "return date."

SEC. 3. A permit will not be issued for the importation of any virus, serum, toxin, or analogous product if advertised so as to mislead or deceive the purchaser or if the package or container in which the same is intended to be sold, bartered, exchanged, shipped, or imported bears or contains any statement, design, or device which is false or misleading in any particular.

REGULATION 12.

Permits will be suspended or revoked (1) if it appears that the construction of the establishment in which the products are prepared is defective or if the establishment is improperly conducted; (2) if the methods of preparation are faulty or if the products contain impurities or lack potency; (3) if the products are advertised or labeled so as to mislead or deceive the purchaser in any particular; (4) if the permit is used to facilitate or effect the importation of any worthless, contaminated, dangerous, or harmful virus, serum, toxin, or analogous product; or (5) if the permittee violates or fails to comply with any provision of said act approved March 4, 1913, or of the regulations made thereunder.

REGULATION 13.

Any officer, agent, or employee of the Department of Agriculture, duly authorized for the purpose, shall be permitted to enter any establishment licensed under these regulations at any hour during the daytime or nighttime, and such duly authorized officer, agent, or employee shall be permitted to inspect, without previous notification, the entire premises of the establishment, including all compartments and buildings, and all equipment, such as chemicals, instruments, apparatus, etc., as well as the methods used in the preparation, handling, and distribution of virus, serum, toxin, or analogous product.

REGULATION 14.

No grinding or mixing machinery, molds, instruments, tables, or other apparatus which come in contact with virulent or attenuated microorganisms or toxins shall be used in the preparation of other forms of biological products.

REGULATION 15.

All equipment, containers, machinery, instruments, and other apparatus used in the preparation of viruses, serums, toxins, or analogous products shall be thoroughly sterilized before use by live steam at a temperature of at least 120

degrees Centigrade for not less than half an hour or exposed to dry heat of at least 160 degrees Centigrade for at least one hour. If for any reason such sterilization can not be applied, then a process known to be equally efficacious in destroying microorganisms and their spores may be substituted.

REGULATION 16.

Permanent detailed records of the methods of preparation of viruses, serums, toxins, and analogous products, including sources of bacterial cultures or viruses used, virulence of such cultures or viruses, methods of testing the purity and potency of the product, together with the methods of preservation, shall be kept by each licensed establishment.

REGULATION 17.

SECTION 1. The stables or other premises used for experiment animals in the production or testing of viruses, serums, toxins, or analogous products shall be properly ventilated and lighted, appropriately drained and guttered, and kept in good sanitary condition. Animals infected with or exposed to any infectious, contagious, or communicable disease shall be properly segregated, and all instruments, containers, and other apparatus shall be thoroughly cleaned and sterilized before use. Establishments shall be so located as to avoid the spread of disease, and suitable arrangements shall be made for the disposal of all refuse.

SEC. 2. Viruses, serums, toxins, and analogous products shall be prepared, handled, and distributed with due sanitary precautions.

REGULATION 18.

When the preparation of viruses, serums, toxins, and analogous products has been completed, said products shall be stored in a cold chamber or refrigerator for preservation until such time as they are removed from the premises. All dealers in the District of Columbia or any Territory or any place under the jurisdiction of the United States shall keep such products under refrigeration until sold or otherwise disposed of.

REGULATION 19.

SECTION 1. Samples of viruses, serums, toxins, and analogous products shall be collected by authorized officers, agents, or employees of the Department of Agriculture.

SEC. 2. Samples may be purchased in the open market, and the marks, brands, or tags upon the package or wrapper thereof shall be noted. The collector shall note the names of the vendor and the agent of the vendor who made the sale, together with the date of purchase. The collector shall purchase representative samples.

SEC. 3. All samples or parts of samples shall be sealed by the collector and marked with identifying marks.

REGULATION 20.

The immunity unit for measuring the strength of tetanus antitoxins shall be 10 times the least quantity of antitetanic serum necessary to save the life of a 350-gram guinea pig for 96 hours against the official test dose of the standard toxin furnished by the Hygienic Laboratory of the United States Public Health Service.

The number of immunity units recommended for the prevention of tetanus in a horse shall be at least 500 units.

REGULATION 21.

SECTION 1. Licenses or permits may be suspended or revoked after opportunity for hearing has been granted to the licensee or importer at times and places designated by the Secretary of Agriculture. All hearings shall be private and confined to questions of fact. The parties interested may appear in person or by attorney, and may submit oral or written evidence on the questions of fact involved.

SEC. 2. If, after opportunity for hearing has been granted, it appears that a licensee or permittee has violated or failed to comply with any provision of said act approved March 4, 1913, or of the regulations made thereunder, the license or permit may be suspended or revoked.

LAW UNDER WHICH THE FOREGOING REGULATIONS ARE MADE.

[Extract from "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1914," approved Mar. 4, 1913 (37 Stat., 832).]

That from and after July 1, 1913, it shall be unlawful for any person, firm, or corporation to prepare, sell, barter, or exchange in the District of Columbia, or in the Territories, or in any place under the jurisdiction of the United States, or to ship or deliver for shipment from one State or Territory, or the District of Columbia to any other State or Territory or the District of Columbia, any worthless, contaminated, dangerous, or harmful virus, serum, toxin, or analogous product intended for use in the treatment of domestic animals, and no person, firm, or corporation shall prepare, sell, barter, exchange, or ship as aforesaid any virus, serum, toxin, or analogous product manufactured within the United States and intended for use in the treatment of domestic animals, unless and until the said virus, serum, toxin, or analogous product shall have been prepared, under and in compliance with regulations prescribed by the Secretary of Agriculture, at an establishment holding an unsuspended and unrevoked license issued by the Secretary of Agriculture as hereinafter authorized. That the importation into the United States, without a permit from the Secretary of Agriculture, of any virus, serum, toxin, or analogous product for use in the treatment of domestic animals, and the importation of any worthless, contaminated, dangerous, or harmful virus, serum, toxin, or analogous product for use in the treatment of domestic animals, are hereby prohibited. The Secretary of Agriculture is hereby authorized to cause the Bureau of Animal Industry to examine and inspect all viruses, serums, toxins, and analogous products, for use in the treatment of domestic animals, which are being imported or offered for importation into the United States, to determine whether such viruses, serums, toxins, and analogous products are worthless, contaminated, dangerous, or harmful, and if it shall appear that any such virus, serum, toxin, or analogous product, for use in the treatment of domestic animals, is worthless, contaminated, dangerous, or harmful, the same shall be denied entry and shall be destroyed or returned at the expense of the owner or importer. That the Secretary of Agriculture be, and hereby is, authorized to make and promulgate from time to time such rules and regulations as may be necessary to prevent the preparation, sale, barter, exchange, or shipment as aforesaid of any worthless, contaminated, dangerous, or harmful virus, serum, toxin, or analogous product for use in the treatment of domestic animals, and to issue, suspend, and revoke licenses for the maintenance of establishments for the preparation of viruses, serums, toxins, and analogous products, for use in the treatment of domestic animals, intended for sale, barter, exchange, or shipment as aforesaid. The Secretary of Agriculture is hereby authorized to issue permits for the importation into the United States of viruses, serums, toxins, and analogous products for use in the treatment of domestic animals, which are not worthless, contaminated, dangerous, or harmful. All licenses issued under authority of this act to establishments where such viruses, serums, toxins, or analogous products are prepared for sale, barter, exchange, or shipment as aforesaid, shall be issued on condition that the licensee shall permit the inspection of such establishments and of such products and their preparation; and the Secretary of Agriculture may suspend or revoke any permit or license issued under authority of this act, after opportunity for hearing has been granted the licensee or importer, when the Secretary of Agriculture is satisfied that such license or permit is being used to facilitate or effect the preparation, sale, barter, exchange, or shipment as aforesaid, or the importation into the United States of any worthless, contaminated, dangerous, or harmful virus, serum, toxin, or analogous product for use in the treatment of domestic animals. That any officer, agent, or employee of the Department of Agriculture duly authorized by the Secretary of Agriculture for the purpose may, at any hour during the daytime or nighttime, enter and inspect any establishment licensed under this act where any virus, serum, toxin, or analogous product for use in the treatment of domestic animals is prepared for sale, barter, exchange, or shipment as aforesaid. That any person, firm, or corporation who shall violate

any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall, upon conviction, be punished by a fine of not exceeding $1,000 or by imprisonment not exceeding one year, or by both such fine and imprisonment, in the discrimination of the court.

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., December 16, 1913.

Hon. W. S. KENYON, *United States Senate.*

DEAR SENATOR KENYON: I beg to acknowledge receipt of your letter of December 6, 1913, in which you suggest the preparation by some of the experts in the department of a pamphlet of instructions to farmers relating to hog cholera.

It is believed that good results will be accomplished by issuing a separate publication dealing especially with methods of preventing the spread of hog cholera, and we have had in mind for some time the issuance of a pamphlet of this nature. The work of preparing the pamphlet will be begun immediately, and it is expected that it will be ready for distribution in the course of a month or so.

We now have a Farmers' Bulletin which deals with the subject of hog cholera in a popular way, a copy of which I am inclosing herewith.

Very truly, yours,

B. T. GALLOWAY,
Acting Secretary.

FIRST NATIONAL BANK,
Davenport, Iowa, October 28, 1913.

Hon. WILLIAM S. KENYON,
United States Senate, Washington, D. C.

MY DEAR SENATOR: We are very much pleased to learn that you are going to press consideration of the question of Federal cooperation in the stamping out of hog cholera. The losses from this disease in this section have been very great this fall, and yet they would have been vastly greater but for the serum we were able to obtain. When serum could be had the herds were saved in large part, Our greatest trouble was not obtaining the serum. The details of this are more fully set forth in the inclosed memorandum prepared by G. R. Bliss, our county agriculturist. Our Scott County organization recently issued the inclosed bulletin on this subject, and I am sure you will be interested in the good that was done with the serum treatment.

I thank you for what you say regarding my testimony before the Banking and Currency Committee. This appears in part 27 of the printed hearings, and the amendments suggested at that time have been practically unanimously approved by the "country" national banks in Iowa.

With kindest regards, we are,

Very truly, yours.

A. F. DAWSON, *President.*

DAVENPORT, IOWA, *October 27, 1913.*

Hon. A. F. DAWSON, *Davenport, Iowa.*

DEAR MR. DAWSON: I was much interested in the letter which you showed me from Senator Kenyon to the effect that he will introduce a bill calling for an appropriation of $1,000,000 to fight hog cholera.

We have been seriously handicapped here all season by our inability to secure reliable serum. On several occasions I have had men with sick herds waiting on me as long as four or five days at a time, and I know positively many herds which could have been saved had we had good serum to give them when their owners first applied for it.

The whole problem of the treatment of pigs for cholera is an uncertain one and will be more or less unsatisfactory as long as we have to depend on private concerns for the supply of serum, due to the fact that the temptation to put it on the market even though a little weak and get the money from it is likely to prove stronger than human nature on the average can stand.

We have a good law in this State at the present time in regard to the strength and cleanliness of serum, but it is nearly impossible to enforce this law and convict firms guilty of selling weak serum because it is so difficult to prove that the serum was weak at the time it was sent from the factory. Another provision of the law, which is an excellent one, requires that serum be sent directly to the farmer who is going to have his hogs treated, who will pay for it at the express office when he takes it away. This law prevents overcharging to a large extent on the part of the veterinarian and takes the handling of the serum entirely out of his hands. This provision, however, it has been impossible to enforce this season because of the fact that an order put in for serum one day with any of our private firms would simply mean a telegram stating that it could not be sent at any time within three or four weeks. Hence it was absolutely necessary, in order to treat sick hogs when they should be treated, for a veterinarian to have a supply of serum on hand ready for immediate action.

Just as soon as the State or the United States Government can furnish reliable serum at a moderate cost to every farmer immediately upon his demand the hog-cholera problem will very largely be solved. We will not have these bad results to record and it will then be comparatively easy to convince men of the value of the serum treatment.

While the State of Iowa, through the serum laboratory, has done excellent work this season and put out a large amount of serum, it has been utterly unable to cope with the situation, and the amount of serum put out has been absolutely insignificant as compared with the amount needed in the State. To my knowledge there has been no time since the serum laboratory was established that one could secure serum within three to four weeks after ordering.

I wish to express myself as very strongly in favor of this bill which Senator Kenyon proposes to introduce. I think it is deplorable that the State of Iowa has not taken more vigorous action in the past to prevent the enormous losses which have been sustained. Each year during the past three these losses have aggregated millions of dollars, and could have been very largely prevented if we had been able to secure an adequate supply of reliable serum.

Sincerely, yours,

G. R. Bliss,
Agent United States Department of Agriculture and County Agriculturist.

Better Farms—Better Crops—Better Homes—Scott County Farm Improvement League—United States Department of Agriculture, Iowa State College, and Scott County Farm Improvement League Cooperating—G. R. Bliss, County Agriculturist.

REPORT ON SERUM FOR HOG CHOLERA.

The serum treatment will save your hogs—We offer three lines of proof.

First. The United States Department of Agriculture and practically every State in the Union has declared its value by the appropriations of Congress and the State legislatures, and by the bulletins of the various State agricultural and experiment stations.

Second. We have kept close watch on nearly 200 herds treated this season, the majority of which have been saved. Notwithstanding reports to the contrary, results in general have been good, and we can take the farmer who doubts to herd after herd where the cholera has been checked with little loss.

Third. We have placed well pigs which never had choiera but were given the double treatment in herds where cholera was raging and left them for several weeks without one of them becoming sick.

Last fall one such pig was placed in the sick herd of Charles Kruse. On January 1 three such pigs were taken from the Iowana Farms and placed in the herds of J. T. Hansen, Walter Koch, and Rudolph Koch. About August 1 three such pigs were taken from the farm of C. W. Lau and placed in the herds of William Murray, Carl Schaefer, and Henry Herman. About September 1 one such pig was taken from the herd of Lewis Sticher and placed in that of William Haines.

We have tested the serum treatment from every standpoint and found it to be the only sure preventive of the hog cholera.

We want to emphasize the following points:

1. Practically all the contagious disease among hogs in Scott County is hog cholera in some of its forms, varying from the acute or quick form to the chronic or slow form.

2. No cure for hog cholera has ever been found, and there is only one positive preventive—the serum treatment.

3. Some farmers may think they know how to keep hog cholera from their premises for years by certain methods of feeding, breeding, disinfecting, or sanitation, but we have seen dozens of such men finally overtaken by the disease. There is not any medicine or precaution of any kind, except the serum treatment, which can be relied upon. The cholera germ is no respecter of persons or methods.

Losses in herds where hog-cholera specifics were used.

Name.	Address.	Number in herd.	Number saved.
P. W. Coates	R. R. No. 2, Walcott	25	5
Wm. Groth	R. R. No. 1, Walcott	40	15
August Schroeder	do	44	3
Carl Martens	do	108	10
Chas. Borchers	R. R. No. 5, Davenport	42	3

Many other so-called hog-cholera remedies have been tried, with results equally disappointing.

4. Hog cholera is no joke. The man who thinks he can let the disease run its course and save most of his hogs is generally doomed to disappointment. Natural and inherited immunity is all that will save him. He who saves over 15 per cent is fortunate above the average.

What cholera does when allowed to run its course.

[Nearly all of these herds were fed some commercial feed or tonic.]

Name.	Address.	Number in herd.	Number lost.
William Murray	R. R. No. 7, Davenport	95	84
Otto Gruenhagen	do	60	60
A. E. Dannatt	Princeton	130	129
Frank Gillmor	R. R. No. 1, Dixon	138	132
J. H. Heuck	R. R. No. 1, Walcott	70	69
John Zimmerman	Princeton	58	55
B. & T. Seaman	R. R. No. 7, Davenport	76	71
Louis Wunder	R. R. No. 1, Dixon	80	76
Claus Arp [1]	do	124	42
Carl Thodt	R. R. No. 1, Walcott	90	86
John Underwood	Princeton	95	87
Andrew Smaltz	do	80	62
William Haines	do	80	60
Ed. Suebberkrebbe [2]	R. R. No. 1, Walcott	120	60
Albert Stoltenberg	R. R. No. 2, Walcott	35	29
John Bunge	R. R. No. 1, Walcott	102	99
Total [3]		1,413	1,201

[1] From immune sows. [2] Mule foot hogs. [3] 85 per cent loss.

5. In most cases a man does not realize how sick his pigs are at first and neglects treating them until it is too late.

6. The success of the serum treatment depends upon the following factors: Strength and cleanliness of the serum, amount of disease in the herd, amount of natural immunity present, coolness of the weather, cleanliness of the premises, kinds of feed given, etc.

The three most important factors which determine life or death are all variable and almost impossible to control. They are the strength of the serum, the deadliness of the cholera germ, and the amount of natural or inherited immunity present.

7. A pig sick with cholera needs clean quarters, no dust, plenty of cool, clean water, fresh slop or milk, good pasture (clover or alfalfa is best), and no corn.

8. The symptoms of chronic cholera are as follows: Loss of appetite, coughing, hard breathing, constipation, and disposition to lie in sheds in the early stages. As the disease progresses the curl leaves the tail, the ears droop, the animal gets thin and weak, staggering as it walks, the eyeball is bloodshot and the eyelids often gummed up so that the pig acts as though blind. Sometimes the head is held to one side. In the last stages the bowels are very loose and the excrement green and watery.

Serum in well herds.

The treatment of well herds has been attended with the largest success and the smallest losses. This is the method which should be used when cholera is in the neighborhood. If one is reasonably sure that he has reliable serum, either the double or simultaneous method should be adopted. The former is safer if one isn't sure of his serum, as there is always a danger of a loss from the simultaneous method. I. F. Gillmor lost 20 per cent by this method.

This will undoubtedly be the chief method used in the future in combating hog cholera. It gives immunity for life except when used in suckling pigs. When used on pigs which have been weaned for about a week it is much less expensive than where the pigs are nearly grown.

The following 40 well-known farmers of Scott County have used this method on their herds, totaling 2,700 head, this season, with a total loss of only 39 pigs: Joseph Bowley, Charles Brockman, W. C. Daniels, Ernest Dengler, C. H. Doud, George Fahrenkrug, Edward Freund, Lewis Freund, I. F. Gillmor, F. G. Hauer, Frank Holland, Henry Horst, Detlef Ihms, Iowana Farms, Roy Johnson, Warren Johnson, Henry Kinz, Henry Klindt, Charles Knouse, Charles Kreiter, John Kreiter, Charles Kruse, Henry Lage, A. H. Lamp, C. W. Lau, John McKnight, Julius Muhs, William Myer, Orphans Home, H. D. Parmele, William Pieper, Chris Raabe, Carl Schnekloth, Le Roy Schutter, W. D. Scott—only given single treatment; immunity has run out—Lewis Stichter, R. A. Strong, Untiedt Bros., John Voss, Henry Wiese, Dietz Wriedt, Wiese Bros.

Slightly affected herds—Single treatment given.

Name.	Address.	Number treated.	Number lost.	Serum used.	Veterinarian.
Adolph Arp	R. R. No. 3, Walcott	40	0	Kansas State	Hell.
Henry Arp	R. R. No. 1, Dixon	84	1	Kansas City	Hasenmiller.
Johannes Blake	R. R. No. 1, Walcott	34	3	Mulford's	Thompson.
William Fahrenkrog	do	29	1	Missouri Valley	Hasenmiller.
Gus. Friedericks	R. R. No. 1, Dixon	36	6	Kansas City	Do.
Henry Goettsch	R. R. No. 5, Davenport	65	55	Red Cross	Hollingsworth.
Chris. Grell	R. R. No. 1, Dixon	43	2	Kansas City	Hasenmiller.
Gus Herring	New Liberty	18	0	Kansas State	Hell.
Fritz Hinrichs	R. R. No. 5, Davenport	78	16	Red Cross	Hollingsworth.
Henry Johannsen	R. R. No. 1, Walcott	37	4	Mulford's	Hell.
Herman Krebs	Durant	25	0	Kansas State	Do.
Henry Kreiter	R. R. No. 4, Davenport	50	2	Kansas City	Hasenmiller.
Albert Kroeger	R. R. No. 1, Dixon	70	4	Greeder's	Do.
Herman Kroeger	Princeton	144	0	Stock yards and American.	Barber.
Herman Lamp	R. R. No. 5, Davenport	70	13	Red Cross	Hollingsworth.
Mrs. Rasmus Larson	R. R. No. 7, Davenport	22	1	Stock yards, Kansas City.	Thompson.
John McKnight	Princeton	50	0	do	Barber.
P. J. Meinert	R. R. No. 1, Walcott	75	10	Red Cross	Hollingsworth.
Ed. Meyer	do	90	10	do	Do.
H. T. Meyer	do	20	1	do	Do.
John Meyer	Stockton	22	11	?	
Henry Moeller	R. R. No. 1, Dixon	20	3	Iowa State	Thompson.
Peter Nissen	Stockton	115	27	Stock yards and Kansas State.	Hell.
Walter Petersen	New Liberty	57	1	Stock yards, Kansas City.	Do.
Otto Ruehberg	do	18	0	Kansas State	Do.
William Schumacher	R. R. No. 1, Walcott	37	0	Mulford's	Do.
Peter Thomsen	Princeton	111	3	Stock yards, Kansas City.	Barber.
Johannes Wulf	Stockton	4	1	Kansas State	Hell.
John Wuestenberg	Donahue	41	1	American	Hasenmiller.

Mr. Blake's herd was not sufficiently inoculated to hold its immunity. Several are now sick and 3 have died. They have been treated again.

Herds quite sick—Single treatment given.

[Should have been treated 3 or 4 days sooner.]

Name.	Address.	Number treated.	Number lost.	Number not treated.	Number lost.	Serum used.	Veterinarian.
J. R. Bowley	R. R. No. 1, Le Claire.	80	28	2	1	Greeder's	Hell.
Ferd Baustian	R. R. No. 4, Davenport.	108	28	0	0	Stock Yards, Kansas City.	Hasenmiller.
Chas. Borchers	R. R. No. 5, Davenport.	16	0	42	39	Red Cross	Hollingsworth.
Albert Burgmann	do	103	4	0	0	Stock Yards, Kansas City.	Thompson.
Wm. Claussen	R. R. No. 2, Davenport.	130	30	10	.....	Greeder's	Hell.
J. A. Fletcher	Princeton	90	5	.....	.....	Greeder's and American.	Do.
Julius Ginm	Stockton	19	5	1	.....	Kansas State	Do.
J. H. Hartmann	Princeton	42	7	1	.....	Stock Yards, Kansas City.	Fulton.
Henry Holst	New Liberty	14	1	.....	.....	Kansas State	Hell.
Louis Klahn	Stockton	48	8	75	70	do	? Do.
H. L. Kroeger	R. R. No. 5, Davenport.	25	15	36	34	Red Cross	Hollingsworth
Wm. Lillis	R. R. No. 7, Davenport.	46	4	.....	.....	Stock Yards	Thompson.
Fritz Meinert	Eldridge	33	10	25	.....	Stock Yards, Kansas City.	Hasenmiller.
John Meyer	R. R. No. 1, Davenport.	16	7	11	11	Red Cross	Hollingsworth.
Frank Meyer	R. R. No. 1, Dixon.	34	8	.....	.....	Kansas City	Hasenmiller.
Peter Meyer	R. R. No. 1, Walcott.	29	8	21	17	do	Schroeder.
Albert Oldenburg	R. R. No. 5, Davenport.	34	15	8	.....	Iowa State	Do.
Lew Peitscher	Princeton	74	45	.....	.....	Stock Yards, Kansas City.	Fulton.
Theo. Pickron	New Liberty	45	15	50	50	Kansas State	Hell.
Otto Prien	R. R. No. 3, Walcott.	165	75	60	60	Stock Yards, Kansas City.	Do.
Geo. Quinn	R. R. No. 1, Eldridge.	83	0	.....	.....	Kansas City	Hasenmiller.
Rudolph Reins	Stockton	25	5	.....	.....	Kansas State	Hell.
J. G. Robertson	Long Grove	78	10	22	18	Stock Yards, Kansas City.	Hasenmiller.
Wm. Roehlk	R. R. No. 1, Walcott.	141	11	12	11	do	Hell.
Albert Roehlk	do	66	5	6	1	do	Do.
Carl Schaefer	R. R. No. 7, Davenport.	32	13	10	8	Stock Yards	Thompson.
Wm. Schaefer	R. R. No. 1, Davenport.	71	26	26	7	Mulford's	Do.
Henry Schmidt	R. R. No. 1, Dixon.	95	1	21	10	American	Hell.
Otto Schmidt	Dixon	103	15	32	31	Stock Yards, Kansas City.	Do.
Schnekloth Bros.	R. R. No. 1, Eldridge.	121	94	1	1	Mulford's	Hesenmiller.
Wm. Schnoor	Donahue	60	3	1	1	Missouri Valley.	Do.
Henry Schult	R. R. No. 1, Dixon.	107	18	4	2	Interstate	Hell.
Herman Wiese	Stockton	23	4	.....	.....	Kansas City	Do.
Hugo Wiese	R. R. No. 5, Davenport.	55	30	.....	.....	Red Cross	Hollingsworth.
Rudolph Wiese	do	54	25	13	13	Stock Yards, Kansas City.	Thompson.

In addition to those mentioned above, Frank Friedriehs, Barney Gasseling, Rudolph Golinghorst, Hans Knehl, W. E. Paul, James Porter, Louis Steinbeck, and several others have used serum on quite sick herds, but the results have not been reported.

Herds very sick—Single treatment given.

[Should have been treated 10 days sooner.]

Name.	Address.	Number treated.	Number lost.	Number not treated.	Number lost.	Serum used.	Veterinarian.
Victor Blyart.....	R. R. No. 1, Dixon.	55	30	.....	.....	Stock yards, Kansas City.	Hell.
A. E. Dannatt....	Princeton.....	23	23	127	126	.....do.....	Fulton.
James Donnelly..	R. R. No. 5, Davenport.	15	15	0	0	.....do.....	Thompson.
William Dubois..	Princeton.....	106	91	21	21	Huber's.....	Barber.
George Frauen....	R. R. No. 3, Walcott.	87	47	8	.....	Mulford's.....	Hell.
Otto Gruenhagen.	R. R. No. 7, Davenport.	18	17	60	60	Stock yards, Kansas City.	Hasenmiller.
Frank Gillmor....	R. R. No. 1, Dixon.	65	59	73	73	.....do.....	Do.
Carl Hamann.....	R. R. No. 1, Walcott.	46	12	60	56	Greeder's.....	Hell.
Ed. Helble.....	Princeton.....	40	26	.....	.....	Stock yards, Kansas City.	Fulton.
Ed. Horst.....	R. R. No. 5, Davenport.	40	39	60	60	.....do.....	Thompson.
J. H. Heuek.....	R. R. No. 1, Walcott.	9	8	71	70	.....do.....	Hell.
Chris. Jaegers.....	.....do.....	22	14	45	44	.....do.....	Schroeder.
Wm. Lilienthal...	Sunbury.....	16	13	.....	.....	North Western..	Hell.
William Moeller..	R. R. No. 1, Dixon.	58	14	2	2	Red Cross.....	Do.
H. Peekenschneider.	R. R. No. 3, Walcott.	59	27	.....	.....	Greeder's.....	Do.
Otto Prien.....	.....do.....	165	75	60	60	Stock yards, Kansas City.	Do.
Theo. Schroeder..	R. R. No. 1, Walcott.	31	16	60	48	Mulford's.....	Do.
F. G. Wessel.....	Long Grove.....	77	25	8	2	Interstate.....	Hasenmiller.
Henry Tank.....	R. R. No. 7, Davenport.	17	9	.....	.....	Stock yards, Kansas City.	Thompson.

In addition to those mentioned above, A. P. Arp, Dougherty Bros., Lewis Frauen, Ed. Grell, Fred Koberg, Henry Wartens, William Stutzel, and several others have treated very sick herds, but no definite reports have yet been received.

NOTE.—In all the above tables the name Hasenmiller refers to the firm of Hasenmiller & Schroeder, of Eldridge.

AMES, IOWA, *November 25, 1913.*

Hon. WILLIAM S. KENYON, *Washington, D. C.*

MY DEAR SENATOR KENYON: I returned to Ames yesterday after an official absence in the East. It was my great misfortunte to be away from Ames when you called here, and to fail to find you in Washington before your return there. I am glad that you came to Ames, and hope you saw everything you were interested in, and I will be very glad to have you make any comments, suggestions, or criticisms to me of conditions as you found them.

I was very nicely entertained by your Mr. Rankin and want to express my appreciation of his kindness.

I wish I could have talked with you about the proposed legislation in the interest of hog-cholera eradication. It seems to me that if the United States Government is going into the business of producing hog-cholera serum, a very large amount of money will need to be provided. I am wondering if, with proper supervision, such as has been provided during the last year or so, and with enlargement of efforts in the States in the interest of serum manufacture, it will be necessary for the Government to undertake this phase of the work further than to give it a temporary impetus.

But I have no doubt as to the advisability of such demonstration or eradication work as is being done in Dallas County and in selected counties in two or three other States. I believe the Government can afford to spend a large amount of money in showing the practicability of keeping a considerable area free from the disease. The mistake should not be made, however, as was done last year, of holding the new appropriations until July 1. The money ought to become available early in the spring before the disease begins to spread. One dollar then is worth several later. While the manufacture of serum is very important, I am inclined to think that, with the limited amount of money

the Government may spend along this line, the demonstration and eradication work is of greater importance, provided the Government makes serum for its own work or can arrange to buy it from State or private plants.

Very truly, yours,

R. A. PEARSON, *President.*

CLARION, IOWA, *November 5, 1913.*

Senator W. S. KENYON, *Washington, D. C.*

DEAR SENATOR: I take this opportunity of expressing my appreciation to you for the bill you introduced, which will give aid to the farmers of the country in combating hog cholera. This bill will provide ample funds for the employment of county men to take the initiative in combating this dreaded disease.

I began the work as county agent in Wright County June 1. Since then I have devoted my entire time to the treatment of hog cholera and the educational work necessary to acquaint the farmers with facts concerning serum treatment. As a result of the work done in this country we have in the neighborhood of 20,000 hogs that have been successfully immunized against cholera. Had reliable, tested serum been available at all times, we could have saved at least 10,000 more hogs.

The farmers of Wright County have supported this movement. Had I been able to enlist the services of four other men there would have been plenty of work for all combating hog cholera. I have had the cooperation of five graduate veterinarians, which has helped greatly in taking care of the urgent demands for assistance.

The farmers of this county are financing this proposition without Government aid. I believe we have an application on file at Washington, D. C., for financial aid, which we are promised will be given as soon as funds are available.

I am sending you, under separate cover, a circular published by our department. This circular gives an outline of the different lines of work we are promoting.

Thanking you very much for the thoughtful effort you are putting forth for our great State of Iowa, I am,

Yours, very truly,

L. O. WISE,
Wright County Adviser.

COLLEGE OF AGRICULTURE AND MECHANIC ARTS,
Ames, Iowa, October 31, 1913.

Hon. W. S. KENYON, *Washington, D. C.*

MY DEAR SENATOR: Won't you kindly send me copy of your so-called hog-cholera bill, which I have seen mentioned several times in the papers?

Probably you know that the work against hog cholera is making good progress in Dallas County. Chief hindrance seems to be that the Federal people do not have enough serum. We have now offered to assist them by giving preference to requests for serum from Dallas County when approved by the Federal representative. But we are obliged to charge a small price for this serum, as we have no provision for free distribution. Our new plant is making an excellent start, and the serum already sent out has done great good. We are increasing the output.

Very truly, yours,

R. A. PEARSON, *President.*

NOVEMBER 24, 1913.

Hon. W. S. KENYON, *Washington, D. C.*

DEAR SIR: Knowing that you are deeply interested in the hog-cholera situation, as it stands now, and that you are trying to help the Government to solve the problem of combating this disease, and that you contemplate asking Congress to make a large appropriation to help in this matter, I am taking the liberty to address you upon this subject, hoping that you will pardon me for making this intrusion upon your time and that you will consider my suggestions given in a spirit of honesty and for the purpose, if possible, to help you get at facts. I send you, under separate cover, a little booklet containing a history of hog sickness back for half a century, a description of things I have seen and

learned in my research against hog sickness. Please do me the kindness to note carefully facts which I have set forth in this little work. I have spent my own time and money when making these investigations, and not the money of any State or Government. I have done this in the interest of science and for the good of my profession. I know, Senator, that the diagnosis, as made of this disease by the staff of the Bureau of Animal Industry, is not correct, neither is their remedy, and seven years of work on this line of attack has proven it is all wrong; and I am prepared to show that the vaccination of hogs with this serum treatment has killed thousands of well hogs on farms where no sickness or losses had occurred before. My little booklet will explain all this. I say, my booklet sells for $1.50. It makes no difference to me whether I sell a copy or not, and I am giving away hundreds of them; but I had it copyrighted, and in doing so I had to put a sale price upon it. Its object is to explain to hog raisers as to the cause and prevention of hog sickness. Now, in conclusion, Senator, let me say thousands of people, not in our own State alone but in other States, are watching with great interest if you make the move on this matter in the right direction. And I think you ought to proceed carefully. If you get an additional increase in the Government appropriation to help a lot of these fellows who are connected with the Bureau of Animal Industry to go on a few years more and boost this serum treatment and have a good time while at it, it will put thousands of good hog raisers out of business. The fact is, Senator, the Bureau of Animal Industry made a guess and made it wrong, but they can't back up now. They ought to call this bet off and guess again. The swine breeders are going to organize and fight it to a man. If you can get an appropriation to put good, honest scientific men in the field to make careful research as to all the causes that are killing our hogs, and why the serum treatment has killed and is still killing thousands of well hogs, and tell our Government departments of these important facts, and educate the hog raisers to adopt the methods of sanitation, and all other helpful methods, as set forth in my booklet—to destroy worms and internal parasites and the importance of keeping them healthy all the time, and use every means to prevent unhealthy conditions among their herds—the question is solved at once and this awful fatality and losses will stop. Thanking you for your interest in this matter and again asking your pardon for this intrusion, and hoping you may be guided right in your efforts in this matter, I am

Yours, respectfully,

E. F. Lowry, V. S.

December 17, 1913.

Hon. W. S. Kenyon, *Washington, D. C.*

Dear Senator: Pardon me for again intruding upon your valuable time. I know that you are a very busy man, but I am so thoroughly aroused over the situation as to the hog sickness in our own and in other neighboring States that I can not refrain from writing you again. Since I last wrote you and sent you my little booklet I have not been idle as to studying the conditions, more especially here in our own State. I have written to and received letters from reliable parties in nearly half the counties in our State, and I find the conditions appalling in the sections where most serum has been used. There the losses have been greatest, and I, as well as other veterinarians and large numbers of hog raisers, are thoroughly convinced that the indiscriminate use of bad serum in the hands of young recently graduated veterinarians, who have settled in our State in the last two years, has been the means of spreading the disease into districts not before affected. Thus thousands of hogs have been made sick and disease has spread and multiplied until there is not a county in this State free from disease and death.

Thousands of well hogs have been vaccinated and began to sicken and die immediately. This is no idle talk, Senator. I have the names and post-office addresses of good men who have told me of their losses of this kind, and I know it is true. In my own county one man had 180 well hogs vaccinated and in 12 days 140 of them were dead. A neighbor had 79 well ones treated the same way and lost all but 12 in 14 days. This is only part of this kind of loss in this county. Around Keota hundreds have been killed the same way. In Dallas County a man near Grimes had 160 well hogs vaccinated by a man called a Government expert and with a serum O. K'd as the best they were using up there. The hogs were not sick. No sickness had been on his farm at any time previous. All but 5 died in a short time. In Mills County a man had nearly

300 treated. Nearly all of them died, and he has brought suit against the veterinary who treated them and the firm from whom he obtained the serum. The case is now pending in the district court of Mills County. The same thing occurred in Muscatine County, and the case is pending there. In one township in Muscatine County it is estimated that over $300,000 worth of hogs have died after they were vaccinated and at least half of these were not sick, but were given the treatment as a preventive. Now, Senator, these are facts and are only a drop in the bucket to what I can tell you further.

Now, what is the trouble? First, people who are manufacturing serum and those who are using and boosting it call everything cholera. All other ailments that are affecting hogs, such as worms, typhoid fever, pneumonia, and half a dozen other ailments, are not noticed by these people. The whole business has turned into a graft game and is causing millions of dollars of unnecessary loss and spread of disease. Why not? Almost every packing plant in the country is turning out this stuff. Even John Morrell & Co., of my own city, is now making it. Twenty-two concerns are making it around the packing plants of Kansas City, 18 or 20 at Omaha, and so on. Senator Kenyon, I have spent my own money in obtaining these facts, not the money of the State or National Government, and I have plenty of facts. Now, I believe that, like myself, you mean right when you take the interest in this matter that you do, and for the sake of the hog raisers and for the sake of the honor of our own State, and your own honor, do not ask Congress to appropriate any more money to aid the serum graft.

I believe the Bureau of Animal Industry meant right when they put this move into operation, but tests have proven it to be a failure, and it is now beyond the control of State or Government. If there were any efficiency in it, we have no way to prove it now. The first thing that should be done is to stop the use of it entirely. If this is not done soon, the swine-raising industry will be ruined. I know you mean well and will do what is right, but it would be well to proceed cautiously. An appropriation of $1,000,000 to determine how to prevent sickness in herds would be money well spent, even if it took that each year and we got the desired results. To appropriate money to help the serum treatment along is worse than pouring oil on a burning fire. If I were a rich man and wanted to be a real philanthropist, I would spend $10,000 to stop the use of this stuff at once. Then get busy and show hog men that this disease can be stamped out, but not by serum methods. Besides thousands of hogs would and do get well of themselves if let alone when they get sick. And thousands of others can be cured with the use of right remedies in the hands of men competent to diagnose disease in sick hogs and use the remedies indicated by the sickness to be treated. What I know about this disease I have learned by scientific research and at my own expense.

Do not be influenced by a lot of wirepulling politicians who are holding positions in our Government departments by the appointment method and not because of honesty or ability. All of such men will still do all they can to get you to assist them further in this useless, dangerous work. Hoping you will look deeply into this matter and will help to stop the use of serum at least long enough to get some control of its output and use, and that your efforts in this present session of Congress will be such as will aid us to get at the proper way to make sick hogs well and keep well hogs from getting sick, and not to aid any further in the use of serum graft, and again asking your pardon for further intruding upon your valuable time, I am,

Yours, most sincerely, E. F. LOWRY.

HAVE FAITH IN SERUM—WRIGHT COUNTY FARMERS WHO LOST MANY HOGS IN EPIDEMIC NOT DISCOURAGED—BELIEVE POOR VACCINE RESPONSIBLE FOR INROADS—EXERCISE OF HERDS FOUND TO BE VALUABLE PREVENTIVE—OLD DAYS AND NEW IN RURAL EDUCATION ILLUSTRATED—SPLENDID FARMERS' CREAMERY AT CLARION—WILSON'S RURAL OBSERVATIONS.

[Special to Times-Republican.]

CLARION, *January 13.*

Of the four hundred or so farmers living on the six rural mail routes from this town, the names of those who escaped a visitation of hog cholera last summer and fall might be enumerated on the fingers of two hands. Practically

every hog raiser had his experience with the disease. One man well posted on the matter estimates that one-fourth the usual supply at this time of year is left as the result of disease and close selling brought about because of it. In the neighboring town of Woolstock, it is said, a buyer collected a carload for shipment, but instead of going to a packing plant every animal of the load found its way into the pork barrel of a local farmer. Nearly everyone who was able to get serum vaccinated his hogs. Nearly everyone who vaccinated believes in the efficacy of the remedy, even though he lost most or all of his hogs, and it is a fact that the losses of hogs thus treated in the early part of the season were heavy. Failure of the treatment to save the animals is generally attributed to inexperience in the work and to untested serum. Late season work done by a trained man and with tested serum produced almost universally favorable results, and many who lost large numbers of their animals this year declare they will administer the double treatment to the next crop at weaning time, confident that immunity will result.

It will not do, however, to state positively that it was vaccination that saved the hogs in every case. Several who did not employ the method at all were able to save a greater or smaller part of their herds. One of these, who found sickness in his yard, "vaccinated" the three or four afflicted porkers with an ax, and proceeded to doctor the remaining ones with a remedy that he heard was good, viz, red pepper. He fed up an even dollar's worth of the fiery stuff, and up to last week he had not a sick hog on his place, a carload of the thriftiest kind of fellows being in his feed yards. Another man lost only 1 hog of a herd numbering about 90. A breeder of pure-bred hogs in another locality adopted a plan of his own. He made it a part of his chores to get out in the morning and "exercise" his hogs—ran them all over the pasture. At the same time he fenced off part of his cornfield and turned the hogs into it. He has just held a hog sale on his farm. Said one man: "I believe hog cholera might be prevented by keeping the stock in fresh yards and pastures, changing them every year or so." One thing is certain; there has been a lot of thinking on this subject of hog disease this year in this part of the country, and if next year's crop is lost it will not be because of carelessness or out-of-date methods on the part of the farmer.

COMPEL USE OF SERUM—COL. FRENCH, OF DAVENPORT, ADVOCATES COMPULSORY INOCULATION OF HOGS—WANTS STATE TO EQUIP LABORATORY TO COST $250,000—SWINE BREEDERS, HE SAYS, SHOULD BE COMPELLED TO INOCULATE EVERY PIG WHEN OLD ENOUGH—BELIEVES DISEASE COULD THUS BE ERADICATED—OWNS HERD OF 1,000 AND NONE ARE LOST.

DAVENPORT, *November 8.*

Farmers and veterinary surgeons who have studied the ravages of hog cholera in Iowa the past year estimate that the total loss will not be less than $15,000,000, and some place it as high as $25,000,000.

Col. George W. French, of Davenport, proprietor of the Iowana stock farm, urges a compulsory system of inoculation, which he thinks will in a few years banish the disease from the State. He has 1,000 hogs, valued at $30,000, all of which have been inoculated with serum and not one has died from the disease. He wants the legislature to appropriate $250,000 for the purpose of establishing a serum factory large enough to produce sufficient serum to supply all the farmers of Iowa.

COMPULSORY INOCULATION.

He would then have the legislature pass a law making it compulsory upon farmers to inoculate every hog in the State, following this up by inoculating every pig as soon as it is old enough. In three or four generations of hogs, he thinks, the disease would be stamped out.

There has been much criticism of the last legislature because of the small amount appropriated to establish the serum factory at Ames. This plant produces hardly enough serum to treat the hogs of one county, to say nothing of the rest of the State.

KILL HOGS ONLY TO SAVE.

Despite the fact that 30 hogs are being sacrificed weekly at the Minnesota Agricultural College in Minneapolis to produce serum that other hogs may be made immune from cholera, which is still prevalent in western and southwestern counties of Minnesota, H. Preston Hoskins, assistant veterinarian, in charge

of the serum department at the university farm, believes the loss to Minnesota farmers this year will be $5,000,000. He declared a large amount of the money would be spent for worthless medicines.

Enough serum can be obtained from one hog to inoculate 500 weighing 100 pounds each. In getting the serum hogs immune from cholera are used. Animals that have recovered from the disease or have been given the serum-virus treatment may be taken for the purpose.

These are rendered hyperimmune by being treated with virus made from other hogs. The blood of the hyperimmune animal has been found to contain a large amount of the substance that protects animals from attacks of cholera. From this blood the serum is made and sent to hog owners in all parts of the State to protect exposed herds.

LATE START MARS HOG-CHOLERA TESTS, BUT GOVERNMENT EXPERIMENTS AT ADEL SHOW VALUE OF WORK—DEMAND IS GROWING—FARMERS TAKING MORE INTEREST AND ARE AIDING EXPERTS.

[By Edgar Markham, staff correspondent.]

ADEL, IOWA, *October 14*.

The first year's results in the Government experiment to determine whether hog cholera can be controlled will not be what was anticipated. But they will show that fully 80 per cent of the hogs of diseased herds can be saved if given the serum treatment. They also will show that few hogs are killed by the simultaneous treatment, which is the one given to prevent the disease.

The reason that the results of the experiment will not be entirely satisfactory is that the disease got ahead of the Government field corps which is working under the direction of Dr. O. B. Hess. The appropriation made by Congress was not available until July 1. By that date hog cholera was prevalent in many communities.

CHOLERA HAD GOOD START.

When it was announced the experiment was to be made it was said that only the preventive treatment would be given. The purpose was to demonstrate that cholera can be controlled by the use of virus and serum, not that it can be cured by the use of serum. But so many hogs were infected that it was found necessary to help save the sick ones.

Dr. James I. Gibson, State veterinarian, was in Dallas County to-day in conference with Dr. Hess. He is cooperating with the Government in the experiment. It is his duty to watch the sanitary end of the work. Quarantine regulations prevail on every farm where it is known that cholera exists or where the simultaneous treatment has been given.

"I am well satisfied with the results that are being obtained," Dr. Gibson said after spending a day in the field. "Dr. Hess and his assistants are doing their best to get the most out of the experiment. They certainly are doing a great thing for the farmers."

FARMERS ARE COOPERATING.

Ralph E. Joy, who is secretary of the county organization, reported to Dr. Gibson that the farmers are cooperating with the Government. There are a few stubborn ones who oppose the use of serum, but not many.

"As an illustration of the interest the farmers are taking in the experiment, I might say that I am called over the telephone all hours of the day and night to send out field men to administer the serum," he said. "All I do is to try to gather data from the farmers that will help in the experiment. Letters have been sent to every farmer in the county."

Close to 8,000 hogs have been treated by the Government field men. A majority of these were found to be diseased. From the reports prepared between 15 and 20 per cent of the diseased hogs have died. Few of the others succumb to the treatment.

REQUIRES BUT LITTLE TIME.

The field men have been in idleness half of the time. Recently near Dawson 457 hogs were treated in eight hours. The experts can administer serum to a hog a minute if they have the help needed.

At the home of W. H. Hathaway, 3 miles north of Redfield, 97 hogs were given the treatment in less than two hours. Twenty more were treated at the George Mullins farm, which is near by. All this was done after 3 o'clock.

Dr. Hess uses three assistants. The farmers are expected to furnish enough help to catch, hold, and prepare the hogs for treatment. Seven men are needed.

One of Dr. Hess's assistants takes the temperature of the hog.

If it is below 104°, the simultaneous treatment is given. Above that mark the hog is considered sick. He needs no virus. If the disease has not made too much progress the serum will cure him.

TEMPERATURE DETERMINES AMOUNT.

From the temperature of the hog Dr. Hess determines the amount of serum to be administered. The size of the animal also plays a big part in determining this. One assistant prepares the serum and virus for injection. The third assistant keeps the records. If the temperature of a hog is found to be more than 106° he is marked. This is done so that Dr. Hess may know whether many of those in the late stages of the disease are cured.

An idea of the work Dr. Hess has before him can be gained when it is known that he this afternoon refused to promise a farmer he could get to his herd in time to do any good. M. T. Pairdekooper, who lives near Hathaway, reported sickness in a herd of 150 head.

MUCH WORK AHEAD.

"I might promise you, but I won't because I know I can not keep it," Dr. Hess said. He called attention to herds aggregating 2,000 head in which there is sickness.

Dr. Hess advises the farmers to hire their hogs treated rather than to wait for the Government men. The expense is about $1 each. The Government makes no charge. Some of the farmers hesitate because one or two incompetent veterinarians have administered the treatment in the county.

At their conference Dr. Gibson and Dr. Hess were unable to reach a conclusion as to what causes the disease to spread as rapidly as it does. Pairdekooper declared that no cholera had existed on his farm since he has lived there—for five years. Not a strange hog has been on the place during the summer. Two weeks ago, however, he drove a carload of hogs to market. Diseased hogs had been put in the stockyards. Dr. Hess said that Pairdekooper may have carried germs home on his clothes.

Three farmers got cholera in their herds by hauling hogs to a shipping place where cholera was prevalent. The wagons and horses carried the germs to the swine pens, Dr. Hess said.

Dr. Hess and Dr. Gibson are sure that by getting an early start in the spring they will be able to control hog cholera in Dallas County next summer. But they don't want to wait until they are put on the defensive before they start fighting.

OFFICIALS TRY TO QUARANTINE SWINE—TOUR OF DALLAS COUNTY UNDERTAKEN BY GIBSON AND FEDERAL EXPERT.

PERRY, IOWA, *October 24.*

Drastic measures to prevent the spread of hog cholera were adopted yesterday when several State officials started a tour of the county to place in quarantine every herd of hogs exposed to cholera.

Dr. James I. Gibson, State veterinarian; Dr. J. W. Bauman, of Bloomfield, member of the State animal health board; Dr. Hess, a Government expert in charge of the work in this county; and Henry Brady, member of the legislature, composed a party of men who left here this morning on a tour of the county.

They are posting notices and doing everything possible to prevent the spread of the disease. The quarantine notices read:

"Parties having business on these premises must keep away from the hog lots. Parties occupying these premises are forbidden to go in or near their neighbors' hog lots."

According to the State and Federal authorities, Dallas County has more hog cholera this year than ever before in its history. Federal aid was given some

time ago, and Dr. Hess and his assistants have been working for weeks to prevent the disease. In many instances they have been very successful, but in others they were notified too late to save the herds and confined their efforts to rendering immune the hogs on the neighboring farms.

They have been handicapped by being unable to secure serum when it was most needed, and conditions are such now that the most drastic measures are necessary to stamp out the disease.

SERUM PLANT SATISFACTORY—LEGISLATORS' ONLY REGRET IS THAT PLANT IS NOT LARGER.

[Special to Times-Republican.]

DES MOINES, *January 10.*

Members of the legislature have been well pleased with the State hog-serum plant in operation at Ames as provided for by the legislature. Several members have taken occasion to visit it during the short-course period at the college.

Speaker Cunningham, who was in the city yesterday, had just come from the college. "The serum plant is all right," he said, "only we have got to make it very much larger in order to do the business. I never saw a plant where they have everything in such excellent condition. And they have the records, too, of every shipment and can show exactly what results were obtained in every case."

Representatives Huntley, of Lucas, and Brady, of Dallas, also in the city this week, spoke in praise of the work being done.

"I have made a thorough investigation of the serum plant at the college," said Senator Ames, of Tama, who led in the fight for its establishment. "The only mistake we made was in not giving enough money. They should be able right now, at the dull time, to be making vast quantities of the serum to be kept for use when needed. It looks like the farmers will have to come to their help by buying in advance and putting up the money. But it is a great institution and everything simply perfect. I went through the laboratories at Kansas City, and in contrast that at Ames is a delight. I am absolutely sure of the value of the plant and the work being done."

PROF. G. R. BLISS ON HOG CHOLERA—IOWA AGRICULTURAL EXPERT ADVISES ILLINOIS FARMERS—APPLIES UNIQUE METHODS—WAGERS THAT HOGS PROPERLY TREATED WILL NOT GET CHOLERA FROM DISEASED ANIMALS.

MONMOUTH, *December 11.*

G. R. Bliss, county agricultural advisor of Scott County, Iowa, in which Davenport is located, is not a betting man, but he made a wager of $100 cold cash at the Mercer County Farmers' Institute meeting yesterday afternoon that if all the hogs of Mercer and Warren Counties were inoculated with fresh hog-cholera serum just after they are weaned, using the double treatment, that not one of the porkers would die, even though placed in a herd of diseased hogs. Mr. Bliss made the same bet with farmers of Scott County when cholera was killing off the hogs by the hundreds in that county a year ago, and he still retains possession of his original bank account—and more.

PLAN SUGGESTED BY THE BUREAU OF ANIMAL INDUSTRY FOR DEMONSTRATING THE BEST METHODS OF CONTROLLING HOG CHOLERA.

METHOD OF PROCEDURE.

I. *Educational work.*—To be carried out jointly by Federal and State officials through lectures and demonstrations before farmers' clubs and special assemblages.

II. *Restrictive regulations and quarantine.*—Restrictive regulations should be issued by State authorities and enforced by State officers and United States employees deputized for the purpose.

III. *Immunization with serum.*—This work is to be under control of employees of the Bureau of Animal Industry, and serum is to be administered at such places and in such manner as they may decide to be necessary.

IV. *Serum production.*—Anti-hog-cholera serum sufficient for the work to be prepared by the Bureau of Animal Industry and furnished to the United States field inspectors upon request.

ORGANIZATION.

I. *Administrative.*—The general administration of the work to be under the general direction of the Chief of the Bureau of Animal Industry, United States Department of Agriculture.

II. *United States Department of Agriculture.*—(*a*) Field force.

One supervising field inspector and adviser. The force in each State is to be an independent unit reporting direct to the Chief of the Bureau of Animal Industry and is to consist of:

One inspector in charge.

One or more veterinary inspectors and one clerk.

(*b*) Laboratory force.

One inspector in charge with the necessary scientific assistants, clerks, and laborers to prepare sufficient serum to supply the various field inspectors.

III. *Nondepartmental.*—(*a*) State officials.

As many trained employees as the State can furnish for field work and lectures.

(*b*) Volunteer assistants.

As many intelligent farmers as can be secured for general cooperation, to be chosen jointly by the United States field inspectors in charge and authorized State representatives.

COOPERATION.

Generally the following principles are to be observed:

1. The preparation and application of serum will be under control of Federal officials.

2. Necessary quarantine and other restrictive measures to be under control of the proper State officials.

3. Educational work to be carried out jointly by Federal, State, and county representatives.

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